PRIMERGY TX150 S3
Server System

Options Guide

Edition January 2005

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1 Introduction

The PRIMERGY TX150 S3 Server is an Intel-based server for medium-sized networks and large companies. The server is suitable for use as a file server as well as an application, information, or Internet server. It is available as a floor-stand or rack model. The floorstand model can be converted to a rack model using an optional conversion kit.

1.1 Overview of the documentation

> PRIMERGY manuals are available in PDF format on the *ServerBooks* CD which is supplied in the ServerView Suite package for every server system.
>
> These PDF files can also be downloaded free of charge from the Internet: at *http://manuals.fujitsu-siemens.com* you will find an overview page with the online documentation available on the Internet. You can go to the PRIMERGY Server documentation by clicking on “intel based Servers”.

Concept and target groups

This Options Guide shows you how you can expand and upgrade the server.

> The Operating Manual for the server describes how you install/remove the hot-plug components.

The activities described in this manual may only be performed by technicians, service personnel or technical specialists.

Additional documentation about the server

The PRIMERGY TX150 S3 documentation comprises the following additional manuals:

– The “Security” manual (printed copy always supplied with the server, and available as a PDF file on the *ServerBooks* CD supplied)
– The “Guarantee” manual (printed copy always supplied with the server, and available as a PDF file on the *ServerBooks* CD supplied)
– The Operating Manual for the PRIMERGY TX150 S3 (PDF available on the *ServerBooks* CD supplied)

- The Technical Manual for the system board D1979 (PDF available on the *ServerBooks* CD supplied)
- The “BIOS Setup” manual (PDF available on the *ServerBooks* CD supplied)
- The “PRIMERGY ServerView Suite - ServerStart” manual (printed copy always supplied with the server, and available as PDF file on the *ServerBooks* CD supplied)
- The “Global Array Manager Client Software User’s Guide” (PDF available on the *ServerBooks* CD supplied)
- The “Integrated Mirroring User’s Guide” (PDF available on the *ServerBooks* CD supplied)

i You can order a supplementary *ServerBooks* CD by sending an e-mail to the following address, quoting your server data:
Reklamat-PC-LOG@fujitsu-siemens.com

Further sources of information:

- Technical Manual on the relevant rack
- Manual on the monitor
- Manual on *ServerView* Server Management
- Manual on the *RemoteView* Remote Test and Diagnostics System
- Documentation on boards and drives
- Documentation on your operating system
- Information files on your operating system

(see also “Related publications” on page 79)

1.2 Extensions and conversions

Extension of the main memory

The four slots for the main memory are suitable for DDR1 333/400 MHz (unbuffered) SDRAM memory modules. The organization in two memory banks, 1 and 2, permits rapid memory access with two-way interleaving.

If the memory modules are populated in pairs, each pair must consist of identical memory modules (2-way interleaved mode).

Additional SATA hard disk drives

In the SATA version four bays are available for SATA hard disk drives.

Additional accessible drives

Three 5.25-inch bays are available for accessible drives. The top side bay is already occupied by a CD/DVD ROM drive.

Hard disks extension box

In the SCSI version the two lower 5.25-inch bays for accessible drives can be used to integrate a hard disks extension box.

The hard disks extension box enables up to three additional HDD modules to be integrated. Each HDD module can accommodate a SCSI hard disk drive with an SCA (Single Connector Attachment) interface and a height of at most 1 inch. The connection to the SCSI backplane is made without cables via the SCA interface. This makes it simple to plug in or pull out the HDD modules. If the server has a RAID controller and the corresponding RAID configuration, defective HDD modules can also be replaced while the system is operating.

Additional controllers in the PCI slots

The system board offers six PCI slots: 2 x PCI-X (64 Bit / 66 MHz), 3 x PCI (32 Bit / 33 MHz) and 1 x PCI-Express x1 slot.

The PCI slot 2 is prepared for Zero Channel RAID (ZCR).

RemoteView Service Board S2 LP

The RemoteView Service Board S2 LP (RSB S2 LP) is a PCI board with a completely independent system, i.e. it has its own operating system with Web server and SNMP agents and can optionally be equipped with an external power supply. The RSB S2 LP permits remote diagnosis for system analysis, remote system configuration and remote restart even in the event of operating system failure or hardware faults. It has its own LAN connection and its own COM port. All the functions of the RSB S2 LP are thus available either via a LAN or modem.

External SCSI interface

If the internal hard disks are connected via a PCI RAID controller, one channel of the on-board controller can also be made available for connecting a peripheral cabinet SX10 via an external SCSI interface.

Conversion standard power supply to hot-plug power supply

The standard power supply can be replaced by a hot-plug power supply. The hot-plug power supply consists of two power supply modules.

If one power supply module fails, the other power supply module guarantees the unrestricted operation and the defective power supply module can be replaced be replaced while the system is operating (hot-plug).

Conversion of the floorstand model to a rack model

The floorstand model can optionally be converted so that the server can be integrated into the common rack systems.

1.3 Notational conventions

The following notational conventions are used in this manual:

Text in italics	indicates commands, menu items or software programs.
„Quotation marks“	indicate names of chapters and terms that are being emphasized.
►	describes activities that must be performed in the order shown.
⚠ **CAUTION!**	pay particular attention to texts marked with this symbol. Failure to observe this warning may endanger your life, destroy the system or lead to the loss of data.
ℹ	indicates additional information, notes and tips.

Table 1: Notational conventions

2 Procedure

CAUTION!

The actions described in these instructions should only be performed by technicians, service personnel or technical specialists. Equipment repairs should only be performed by authorized, qualified staff. Any unauthorized opening and improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) and could also damage the equipment. Please note that any unauthorized opening of the device will result in the invalidation of the warranty and exclusion from all liability.

- First of all please familiarize yourself with the safety instructions in the section chapter “Safety notes” on page 7 et seqq. .
- Ensure that all required manuals (see “Additional documentation about the server” on page 1) are available, printing out the PDF files if necessary. You will definitely need the Operating Manual for the server and the Technical Manual for the system board.
- Shut down the server correctly, switch it off, pull out the power plug(s), and open the server as described in the chapter “Preparation” on page 13 et seqq. .
- Extend or upgrade your server as described in the relevant chapter.

  i The Operating Manual for the server describes how you install/remove the hot-plug components.

  i Procedures which are identical for the floorstand and rack models are only described for the floorstand model.

- Close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .
- Start the operating system and, if necessary, configure it as required (see the Operating Manual).

3 Safety notes

The following safety notes are also provided in the “Safety” manual.

This device complies with the relevant safety regulations for data processing equipment.

If you have any questions about where you can set up the device, contact your sales outlet or our customer service team.

CAUTION!

The actions described in these instructions should only be performed by technicians, service personnel or technical specialists. Equipment repairs should only be performed by authorized, qualified staff. Any unauthorized openings and improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) and could also damage the equipment. Please note that any unauthorized openings of the device will result in the invalidation of the warranty and exclusion from all liability.

Before operating the device

CAUTION!

- During installation and before operating the device, observe the instructions on environmental conditions for your device.
- If the device is brought in from a cold environment, condensation may form both inside and on the outside of the machine.

  Wait until the device has acclimatized to room temperature and is absolutely dry before starting it up. Material damage may be caused to the device if this requirement is not observed.
- Transport the device only in the original packaging or in packaging that protects it from knocks and jolts.

Installation and operation

CAUTION!

- If the rack model is integrated in an installation that receives power from an industrial (public) power supply network with the IEC309 connector, the (public) power supply protection must comply with the requirements for the non-industrial (public) power supply networks for the type A connector.
- The server automatically sets itself to a voltage in the range of 100 V to 240 V. Make sure that your local voltage is within this range.
- This device has a specially approved power cable and must only be connected to a grounded insulated socket.
- Ensure that the power socket on the device or the grounded wall outlet is freely accessible.
- The ON/OFF button does not disconnect the device from the mains voltage. To disconnect the line voltage completely, remove the power plug(s) from the grounded insulated socket(s).

CAUTION!

- Always connect the device and the attached peripherals to the same power circuit. Otherwise you run the risk of losing data if, for example, the central processing unit is still running but the peripheral device (e.g. storage subsystem) has failed during a power outage.
- Data cables to peripheral devices must be adequately shielded.
- To the LAN wiring the requirements apply in accordance with the standards EN 50173 and EN 50174-1/2. As minimum requirement the use of a protected LAN line of category 5 for 10/100 MBps Ethernet, and/or of category 5e for Gigabit Ethernet is considered. The requirements of the specification ISO/IEC 11801 are to be considered.
- Route the cables in such a way that they do not form a potential hazard (make sure no-one can trip over them) and that they cannot be damaged. When connecting up a device, refer to the relevant notes in this manual.
- Never connect or disconnect data transmission lines during a storm (lightning hazard).

- In emergencies (e.g. damaged casing, controls or cables, penetration of liquids or foreign matter), switch off the device immediately, remove the power plug and contact your sales outlet or customer service team.
- Proper operation of the device (in accordance with IEC 60950/ EN 60950) is only ensured if the casing is completely assembled and the rear covers for the installation openings have been put in place (electric shock, cooling, fire protection, interference suppression).
- Only install system expansions that satisfy the requirements and rules governing safety and electromagnetic compatibility and relating to telecommunications terminal equipment. If you install other expansions, you may damage the system or violate the safety regulations and regulations governing RFI suppression. Information on which system expansions are suitable can be obtained from the customer service centre or your sales outlet.

CAUTION!

- The components or parts marked with a warning label (e.g. lightning symbol) may only be opened, removed or exchanged by authorized, qualified personnel. The hot-plug power supply units are exceptions to this rule.
- The warranty expires if the device is damaged during the installation or replacement of system expansions.
- You may only set those resolutions and refresh rates specified in the „Technical data“ section of the monitor description. Otherwise, you may damage your monitor. If you are in any doubt, contact your sales outlet or customer service centre.

Batteries

CAUTION!

- Incorrect replacement of batteries may lead to a risk of explosion. The batteries may only be replaced with identical batteries or with a type recommended by the manufacturer (see the technical manual for the system board under “Related publications” on page 79).
- Do not throw batteries into the trash can. They must be disposed of in accordance with local regulations concerning special waste.
- The battery must be disposed of in accordance with local regulations concerning special waste.
- Replace the lithium battery on the system board in accordance with the instructions in the technical manual for the system board (see “Related publications” on page 79).
- All batteries containing pollutants are marked with a symbol (a crossed-out garbage can). In addition, the marking is provided with the chemical symbol of the heavy metal decisive for the classification as a pollutant:

  Cd Cadmium
  Hg Mercury
  Pb Lead

Notes on handling CDs and CD-/DVD-ROM drives

CAUTION!

- Use only CDs in proper condition in the CD-/DVD-ROM drive of your server to prevent data loss, damage to the device and injuries.
- Therefore, check each CD for damage, cracks, breakage etc. before inserting it in the drive.

  Please note that any additional labels applied may change the mechanical properties of a CD and cause imbalance.

  Damaged and imbalanced CDs can break at high drive speeds (data loss).

  Under certain conditions sharp-edged pieces of broken CDs can penetrate the cover of the drive (damage to the device) and be thrown out of the device (danger of injury, particularly on uncovered body parts such as the face or neck).

You protect the CD-/DVD-ROM drive and prevent mechanical damage, as well as premature wearing of the CDs, by observing the following suggestions:

- Only insert the CDs in the drive when needed and remove them after use.
- Store the CDs in suitable sleeves.
- Protect the CDs from exposure to heat and direct sunlight.

Note about the laser

The CD-/DVD-ROM drive is classified for laser class 1according to IEC 60825-1.

CAUTION!

The CD-/DVD-ROM drive contains a laser diode (LED). Sometimes the LED produces a stronger laser beam than laser class 1. Direct view into this laser beam is dangerous.

Never remove parts of the CD-/DVD-ROM drive assembly!

Modules with electrostatic-sensitive components:

Systems and components that might be damaged by electrostatic discharge (ESD) are marked with the following label:



Figure 1: ESD label

When you handle components fitted with ESDs, you must observe the following points under all circumstances:

- Remove the power plug from the power socket before inserting or removing components containing ESDs.
- You must always discharge yourself of static charges (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Only touch the components at the positions highlighted in green (touch points).
- Do not touch any exposed pins or conductors on a component.
- Use a grounding cable designed for this purpose to connect yourself to the system unit as you install components.
- Place all components on a static-safe base.

i You will find a detailed description for handling ESD components in the relevant European or international standards (DIN EN 61340-5-1, ANSI/ESD S20.20).

4 Preparation

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

4.1 Floorstand model

4.1.1 Opening the server

- Terminate all applications and shut down the server correctly.
- If your operating system has not switched off the sever, press the on/off switch.
- Pull all power connectors out of the power outlets.
- If required, remove the lock on the side cover.

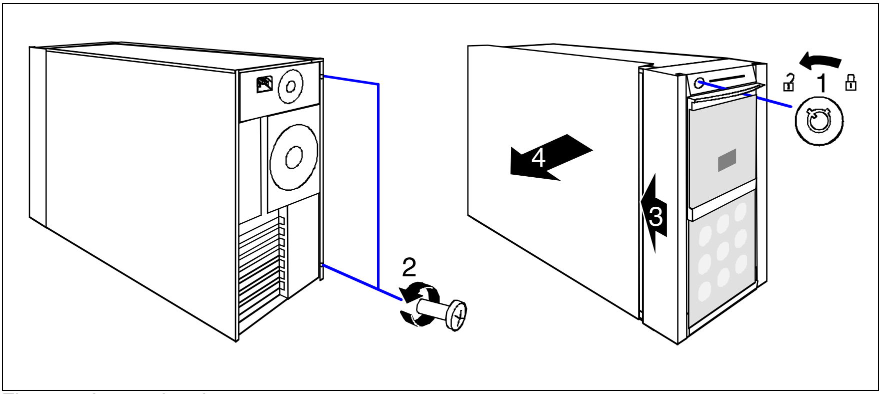


Figure 2: Loosening the screws

- Unlock the server (1).
- Loosen the two screws at the rear side (2).
- Push back the left-hand side cover approxiate 2 cm (3).
- Remove the left-hand side cover (4).

4.1.2 Removing the front cover

Remove the front cover when making the following extensions and upgrades:
- Installing further accessible drives
- Upgrading the floorstand model to a rack model

► Remove the hard disk cover as shown in figure 5 on page 15.

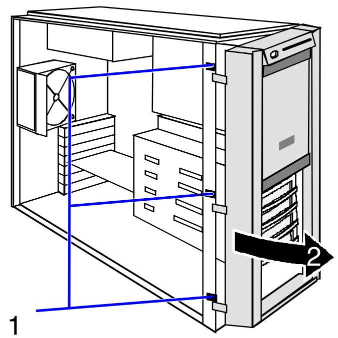


Figure 3: Removing the front cover

► Disengage the three tabs (1) on the left side one after the other and rotate the front cover outward (2) about 2 cm.

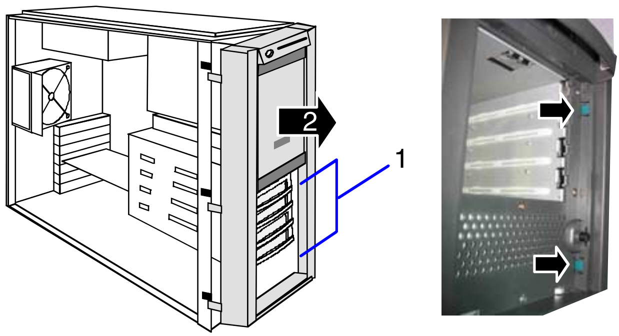


Figure 4: Removing the front cover

► Press the two hooks (1) on the right side inward and pull out the front cover frontward (2).

4.1.3 Removing the hard disk cover

Remove the hard disk cover when making the following extensions and upgrades:

– Installing further SATA hard disk drives

► Terminate all applications and shut down the server correctly.

► If your operating system has not switched off the sever, press the on/off switch.

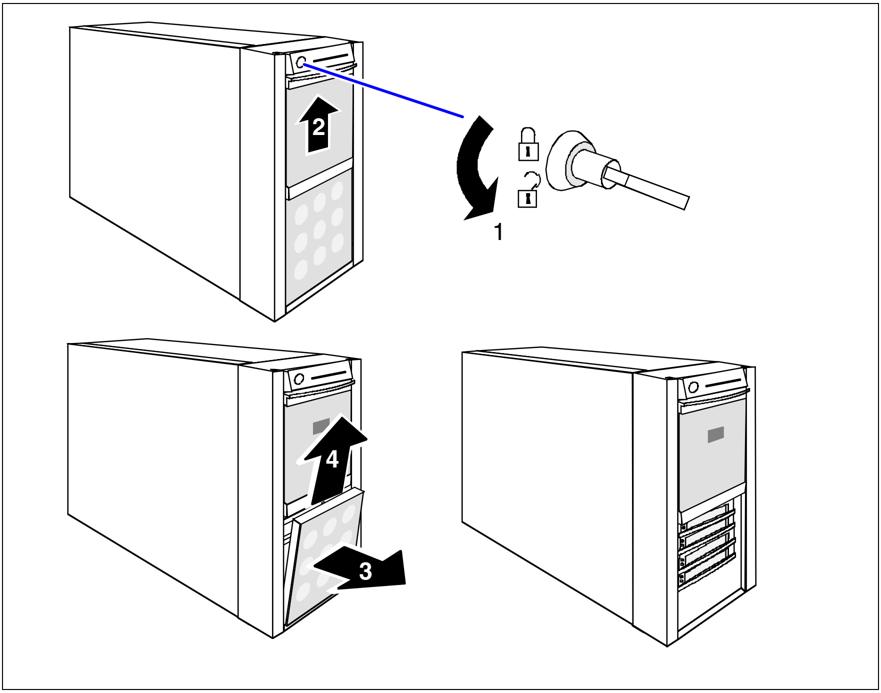


Figure 5: Removing the hard disk cover

► Unlock the server (1) and remove the key.

► Push the drive cover up as far as possible (2).

► Remove the hard disk cover (3 + 4).

4.2 Rack model

- Terminate all applications and shut down the server correctly.
- If your operating system has not switched off the server, press the on/off button.
- Pull all power connectors out of the power outlets.

4.2.1 Opening the server

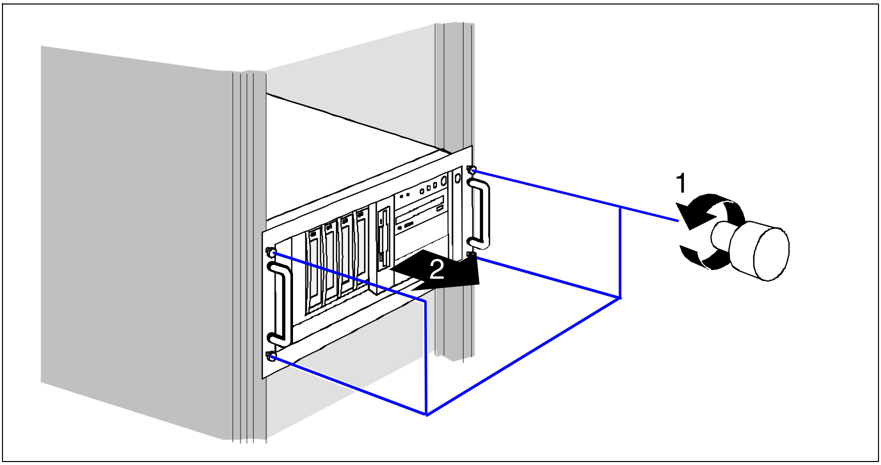


Figure 6: Loosening the knurled screws

- Loosen the four knurled screws (1) and pull the server as far as possible out of the rack (2).

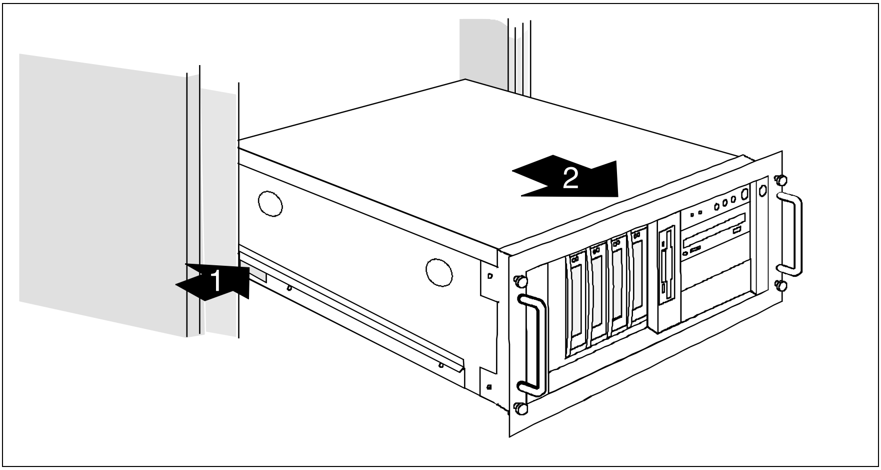


Figure 7: Loosening the locking spring

► Press in the locking spring (1) on both sides and carefully pull the server outward (2).

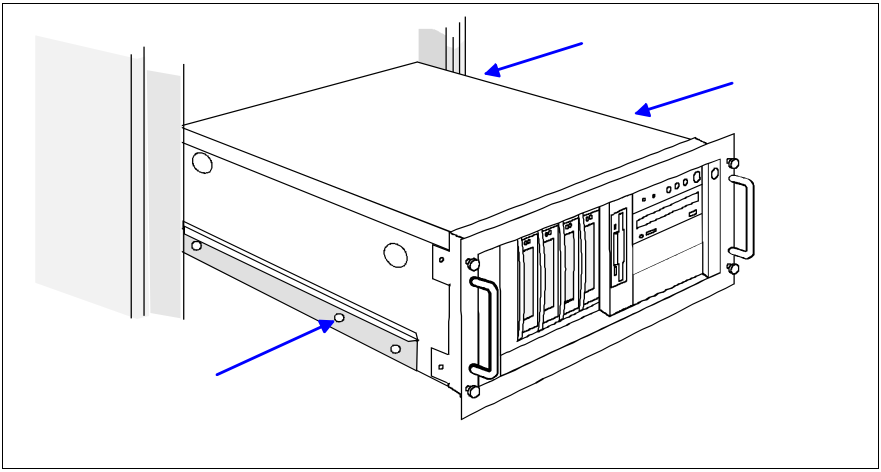


Figure 8: Removing the server from the rack cabinet

► Disconnect all cables on the rear of the server.

► Remove the telescopic rails on the left and right side (three screws).

CAUTION!

At least two people are needed to lift the server out of the rack cabinet.

- Lift the server out of the rails and place it on a table, for example.

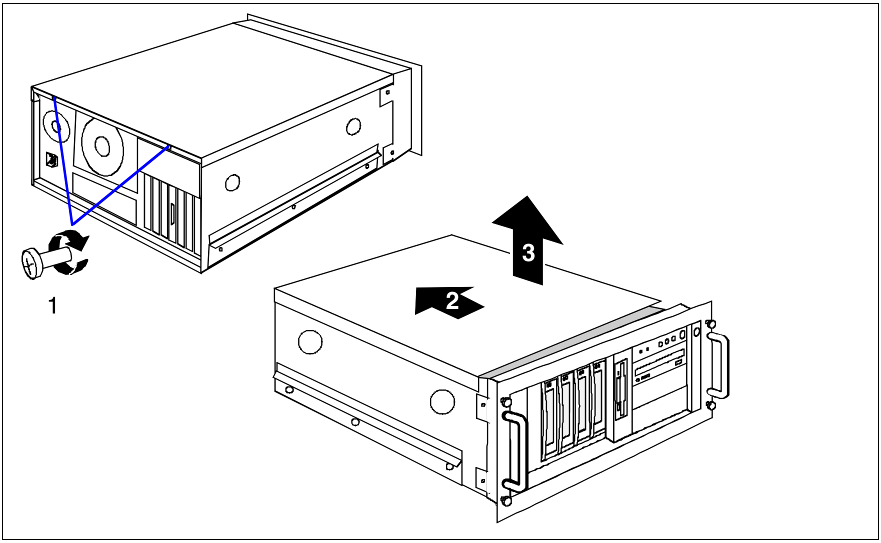


Figure 9: Loosening the screws

- Unlock the top cover by removing the two screws at the rear side (1).
- Push back the top cover approxiate 2 cm (2).
- Remove the top cover (3).

4.2.2 Removing the rack front cover

Remove the rack front cover when carrying out the following extension:
– Installing further accessible drives

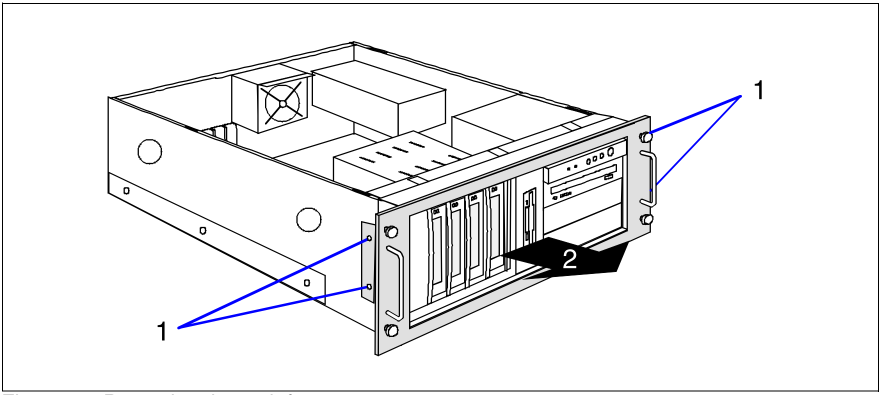


Figure 10: Removing the rack front cover

► Remove two screws on either side (1).

► Remove the rack front cover to the front (2).

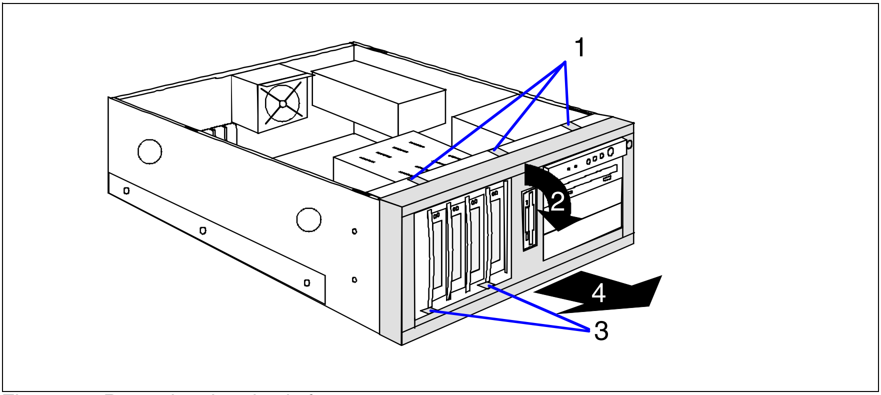


Figure 11: Removing the plastic front cover

► Disengage the three tabs (1) on the top side one after the other and pull out the plastic front cover frontward (2) about 2 cm.

► Press the two hooks (3) on the bottom side downward and pull out the plastic front cover frontward (4).

5 Main memory

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

The system board supports up to 4 Gbytes of main memory. Four slots (2 slots form a memory bank) are provided for the main memory. Each memory bank can be equipped with 256 Mbyte, 512 Mbyte or 1 Gbyte unbuffered DDR I memory modules.

5.1 Equipping rules

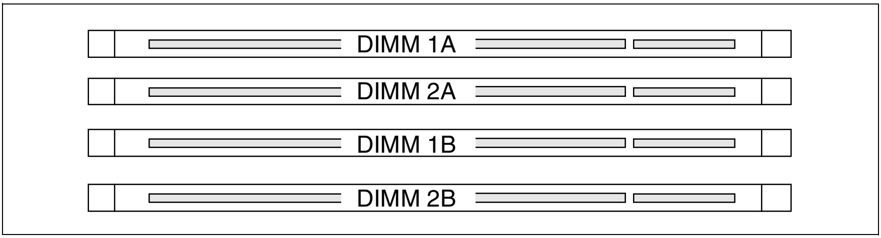


Figure 12: Structure of the main memory in memory banks and memory modules

– Each memory bank is equipped with two memory modules with the same capacity. Memory access takes place in 2-way interleaved mode.

– The memory module capacity can differ for the various memory banks: e.g. memory bank 2A/2B can be equipped with two 512 Mbyte memory modules, and memory bank 1A/1B with two 1 Gbyte memory modules.

The table below shows the order in which the memory banks must be equipped:

	DIMM_1A	DIMM_2A	DIMM_1B	DIMM_2B
single channel	equipped	empty	empty	empty
	empty	equipped	empty	empty
	empty	empty	equipped	empty
	empty	empty	empty	equipped
dual channel	equipped	empty	equipped	empty
	empty	equipped	empty	equipped
	equipped	equipped	equipped	equipped

5.2 Extending/replacing the main memory

- Open the server as described in the chapter “Preparation” on page 13 et seqq. .

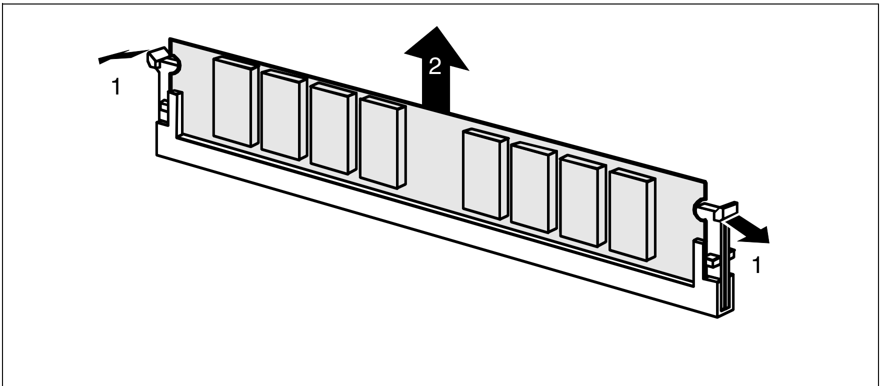


Figure 13: Removing a memory module

- Press the holders on either side of the mounting location concerned outward (1).
- If the mounting location was already equipped: pull the memory module out of the mounting location (2).

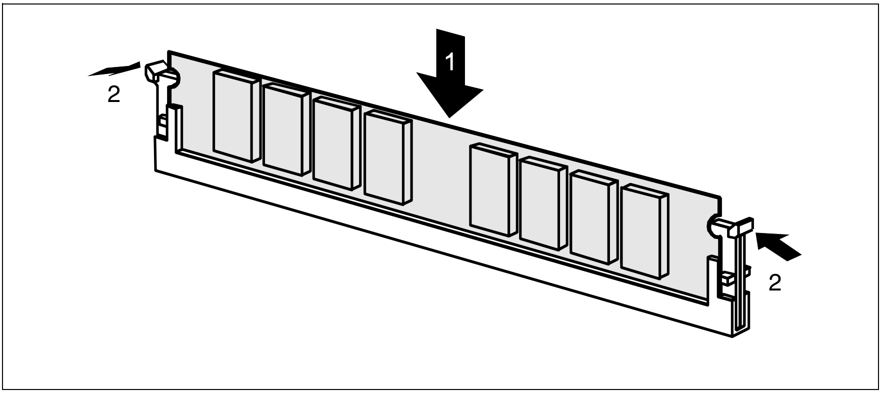


Figure 14: Inserting a memory module

- Press the holders on either side of the mounting location concerned outward.
- Insert the memory module in the mounting location (1) until the holders at the sides engage (2).
- Close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .

6 Accessible drives

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

Three 5.25-inch bays are available for accessible drives. The top side bay is already equipped with a CD/DVD-ROM drive. The two lower bays can also be used to install a hard disks extension box.

6.1 Installing an accessible 5.25-inch drive

The 5.25-inch drives available are magnetic tape drives, CD/DVD-ROM drives and CD/DVD-ROM burners. These drives can be installed in the two free 5.25-inch bays.

► Open the server and remove the front cover or rack front cover as described in the chapter “Preparation” on page 13 et seqq. .

New 5.25-inch drives are supplied without EasyClick rails. Before installing a new drive you must therefore remove the EasyClick rails from the dummy cover and mount the EasyClick rails on the new drive.

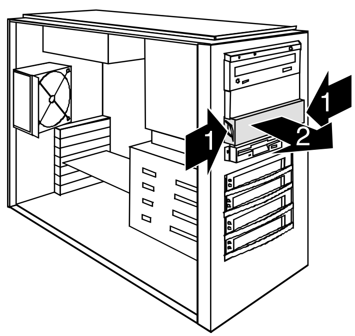


Figure 15: Removing the dummy cover

► Press the two metal tongues of the EasyClick rails inward (1) until the locking mechanism is released.

► Remove the dummy cover from the bay (2).

- Remove the EasyClick rails from the dummy cover by removing the four screws on each side.

  i Note that there are two M3 screws and two UNC screws on each side.

CAUTION!

Keep the dummy cover for future use. If you remove the accessible drive again and do not replace it with a new one, the dummy cover must be reinstalled to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.

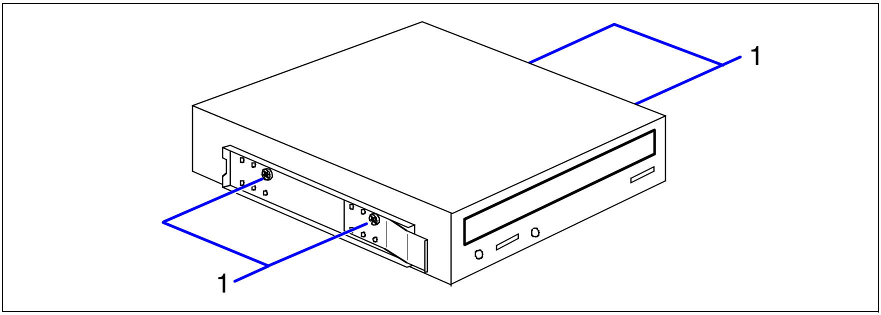


Figure 16: Attaching the EasyClick rails - DVD-ROM burner

- Screw the EasyClick rails onto either side of the new 5.25-inch drive using two M3x4.5mm screws (1).
  Use the first hole in each upper row of holes as shown in the figure.

  i Keep the remaining screws for future use. The different drives are fastened using different screws. Starting on the next page, you will find figures which show the attaching of the EasyClick rails for magnetic tape drives.

- Push the new drive about halfway into the bay.
- Connect the data cable to the accessible drive (see the cabling plans in the Appendix).
- Connect the power cable to the accessible drive (see the cabling plans in the Appendix).
- Push the drive fully into the bay until the EasyClick rails latch in place.

► Attach the front cover or rack front cover, close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .

You will find in the following figures which holes and screws should be used for the magnetic tape dives.



Figure 17: Attaching the EasyClick rails - magnetic tape drive LTO Ultrium 1HH

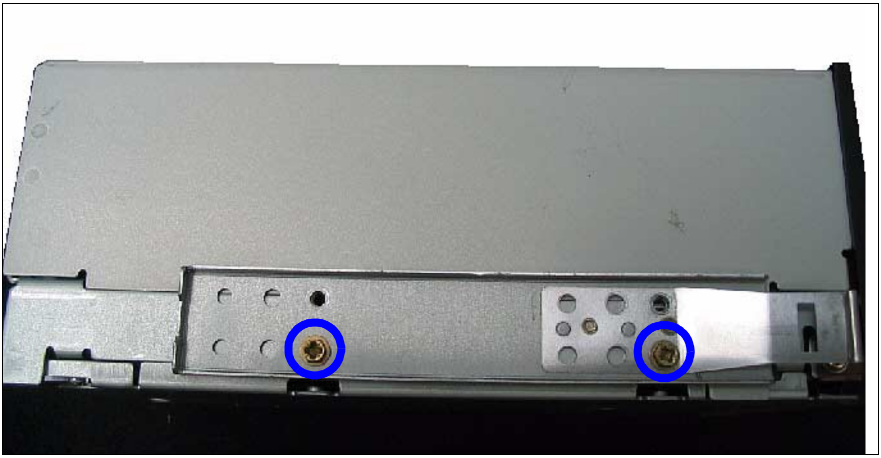


Figure 18: Attaching the EasyClick rails - magnetic tape drive LTO Ultrium 2FH



Figure 19: Attaching the EasyClick rails - magnetic tape drive VXA-2



Figure 20: Attaching the EasyClick rails - magnetic tape drive DDS Gen5

6.2 Installing the hard disks extension box

In the SCSI version the two lower 5.25 inch bays for accessible drives can be used to install a HDD extension box. But it is required that the server is equipped with a 1- or 2-channel RAID controller.

> i It is not allowed to operate the hard disks of the HDD extension box together with the internal hard disks via **one** common SCSI line.

If the server has a RAID controller and a corresponding RAID configuration, defective hard disk modules can also be exchanged during operation.

► Open the server and remove the front cover or rack front cover as described in the chapter “Preparation” on page 13 et seqq. .

> i The hard disks extension box is supplied without EasyClick rails. You need 8 M3 screws. Before installing a new hard disks extension box you must therefore remove the EasyClick rails from the two dummy covers and mount two of the four EasyClick rails on the hard disks extension box.

► Remove the dummy covers from the two lower 5.25-inch bays for accessible drives:

  ► Press the two metal tongues of the EasyClick rails inward (1) until the locking mechanism is released.

  ► Remove the dummy cover from the bay.

► Remove the EasyClick rails from the two dummy covers by removing the four screws on each side.

> i Note that there are two M3 screws and two UNC screws on each side.

> ! **CAUTION!**
>
> Keep the dummy covers for future use. If you remove the hard disks extension box again and do not replace it with new drives, the dummy covers must be reinstalled to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.



Figure 21: Attaching the EasyClick rails

- Screw the EasyClick rails onto either side of the hard disks extension box using four M3 screws for each rail. Use the holes marked above for this purpose.
- Push the hard disks extension box fully into the bay until the EasyClick rails latch in place.
- Connect the power cable plug P2 to the hard disks extension box.
- Connect the SCSI cable T26139-Y3927-V1 included in the conversion kit to the SCSI connector on the HDD extension box.
- Connect the I^2C cable (T26139-Y3718-V601) with the I^2C bus connector of the HDD extension box..
- Secure the I^2C cable with a green clamp.
- Route the SCSI cable and connect it to the SCSI connector on the 1- or 2-channel RAID controller.
- Attach the front cover or rack front cover, close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .

7 Controller in the PCI slots

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

The system board offers six PCI slots: 2 x PCI-X (64 Bit / 66 MHz), 3 x PCI (32 Bit / 33 MHz) and 1 x PCI-Express x1 slot.

The PCI slot 2 is prepared for Zero Channel RAID (ZCR).

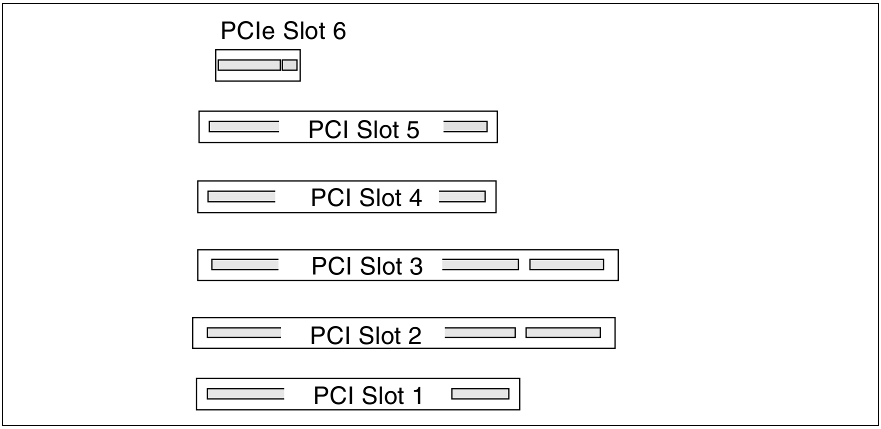


Figure 22: Numbering of the PCI slots

PCI slot	64Bit/ 32Bit	Frequency in MHz	Description
1	32 Bit	33	32-Bit PCI bus slot
2	64 Bit	66	64-Bit PCI X bus slot, prepared for ZCR
3	64 Bit	66	64-Bit PCI X bus slot
4	32 Bit	33	32-Bit PCI bus slot
5	32 Bit	33	32-Bit PCI bus slot
6			PCIe x1 bus slot

For more information see the Technical Manual of the system board D1979.

7.1 Installing a controller

► Open the server as described in the chapter “Preparation” on page 13 et seqq. .

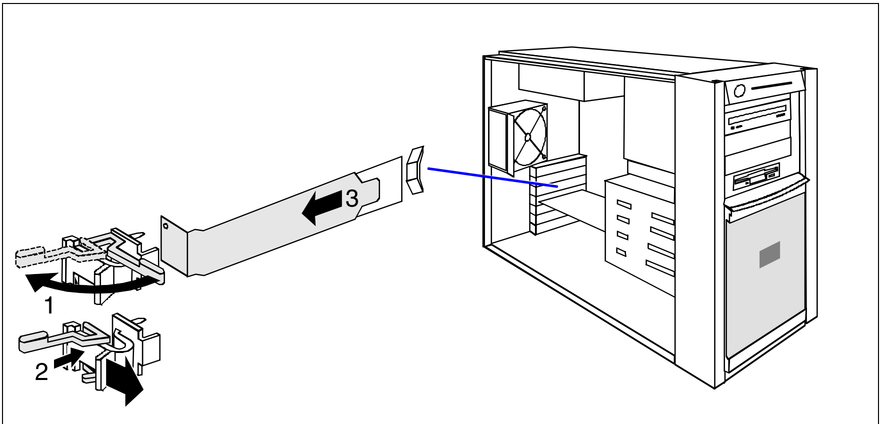


Figure 23: Removing the rear cover

► Swing the locking swivel in the direction of the arrow (1).

► Press onto the clip (2) and remove it.

► Remove the PCI slot’s rear cover (3).

CAUTION!

Keep the rear cover of the PCI slot for future use. If you remove the controller again and do not replace it with a new one, the rear cover must be reinstalled to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.

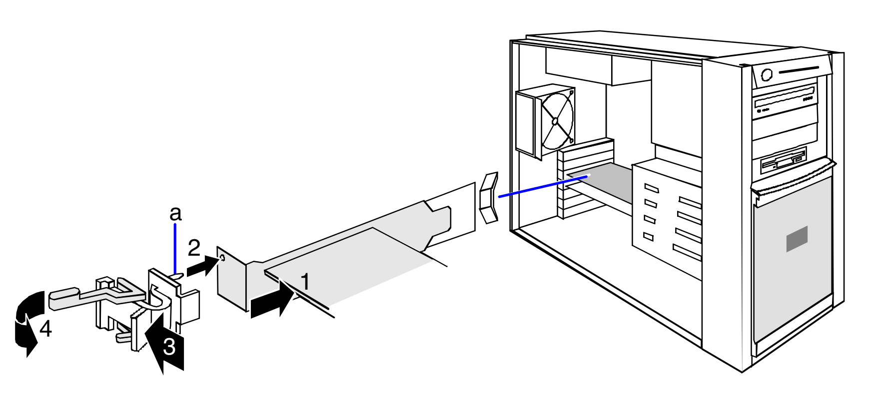


Figure 24: Installing a controller

- Install the controller in the PCI slot and press it carefully into the associated plug-in location on the system board (1) until it engages properly.
- Place the clip on the slot cover in such a way that the pin (a) fits into the hole of the slot cover (2), and press the clip in the direction of the arrow (3) until it engages.
- Swing the locking swivel (4) in its locking position.
- If required, connect the cables to the controller and other components.
- Close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .

7.2 PCI slot assembling

Install first those controllers which request a defined slot. Then install the PCI-X controllers, then the PCI66 and at least the PCI33 controllers.

	PCI bus type	Quantity	Preferred slot	Forbidden slot
1. Controller for defined slots				
RemoteView service board S2 LP	33	1	1	2, 3
2. PCI-X controller				
3. PCI 66 MHz controller				
LSI MegaRaid Zero Channel	66	1	2	1, 3, 4, 5
LSI MegaRaid Two Channel	66	1	2, 3	1, 2, 4, 5
Emulex LP900SL	66	3	1, 3, 4	2
Qlogic QLA2200	66	3	1, 3, 4	2
Intel Pro 1000MT Dual Port	66	4	2, 3, 4, 5	
Intel Pro 1000MT Server	66	4	2, 3, 4, 5	
4. PCI 33 MHz controller				
Promise TX150 SX4	33	1	2	
Eicon Diehl Diva Bri-2M	33	2	5, 4, 3, 1	
Eicon S94	33	2	5, 4, 3, 1	
Madge MK4	33	4	5, 4, 3, 1	
Intel Pro 1000MT Desktop	66	2	4, 5	

Table 2: PCI slot assembling

8 RemoteView components

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

8.1 RemoteView Service Board S2 LP

How to configure the RSB S2 LP is described in detail in the User Guide “RemoteView”.

The preferred mounting location for the RSB S2 is PCI slot 1.

The RSB S2 LP is connected to the system board via a power and a data cable. The RSB S2 LP kit contains an external power supply.

► Open the server as described in the chapter “Preparation” on page 13 et seqq. .

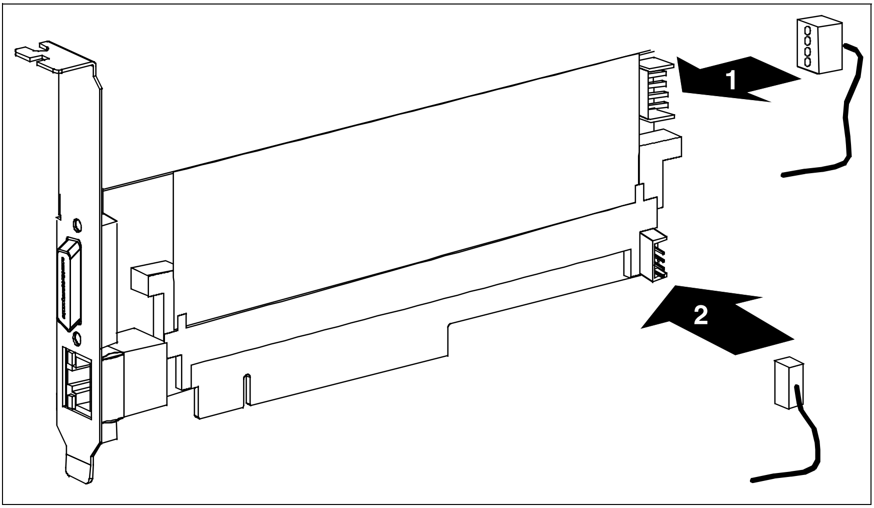


Figure 25: Connecting cables to the RSB S2 LP

► Connect the power cable (1) and the data cable (2) to the RSB S2 LP.

► Install the RSB S2 LP in PCI slot 1 as described in section “Installing a controller” on page 32.

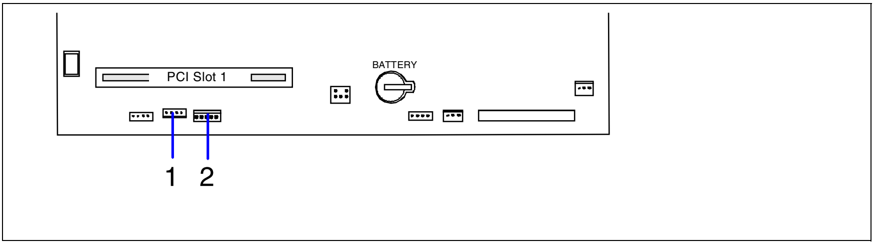


Figure 26: Connecting cables to the system board

► Connect the data cable to the connector IPMB (1) and the power cable to the connector RSB LP Power (2) on the system board.

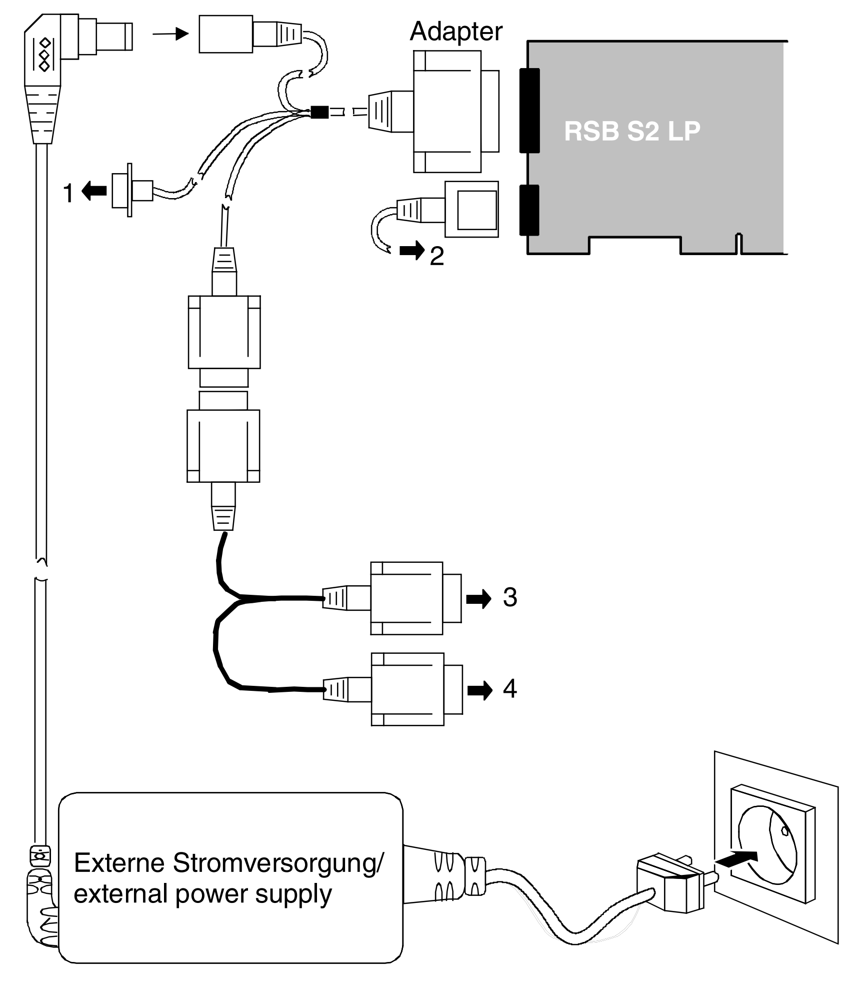


Figure 27: Connecting external cables

1	connect to USB port of the server
2	connect to LAN port of the network
3	connect to VGA port of the server
4	connect to VGA port of the monitor

- Connect the external cables and the external power supply as shown in figure 27 on page 37.
- Close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .

9 External SCSI interface

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

If the internal hard disks are connected via a PCI RAID controller, one channel of the on-board controller can also be made available for connecting a peripheral cabinet SX10 via an external SCSI interface.

9.1 Installing the external SCSI interface

- Open the server as described in the chapter “Preparation” on page 13 et seqq. .

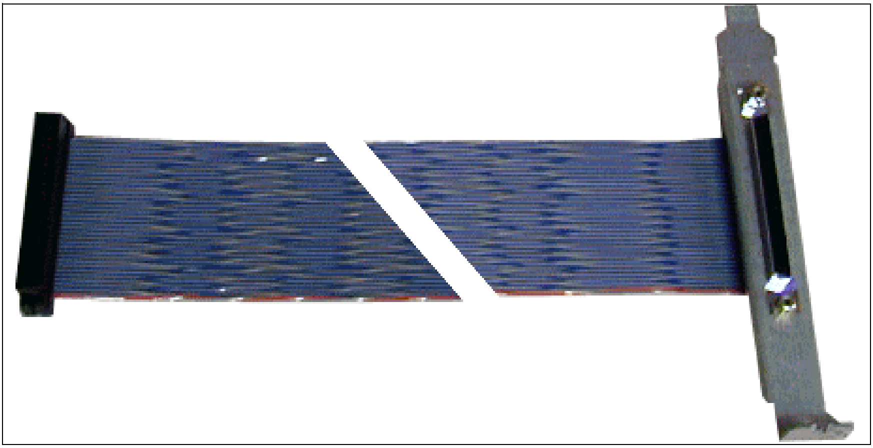


Figure 28: External SCSI interface

- Remove the rear cover of PCI slot 7 and insert the slot cover of the external SCSI interface in this slot as described in section “PCI slot assembling” on page 34.
- Attach the external SCSI interface’s connector to the SCSI channel of the onboard SCSI controller on the system board (connector SCSI U320).
- Close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .

10 Conversion standard PS to hot-plug PS

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

The standard power supply can be replaced by a hot-plug power supply. The hot-plug power supply consists of up to two power supply modules. The upgrade kit contains only one power supply module (for power supply redundancy the second power supply module must be additionally ordered).

The upgrade kit for the hot-plug power supply consists of the following parts:

– PS cage with Power backplane (incl. power cables)
– locking rail
– one power supply unit
– dummy cover (if only one power supply module is installed, you have to install the dummy cover in the second bay)
– several screws
– anti-tilt bracket

CAUTION!

After installing the hot-plug power supply the SDR (sensor data record) data base must be updated. For this sequence you need a BIOS flash diskette. This diskette contains the newest BIOS version, the BMC firmware and the SDR data.

► Write a BIOS flash diskette by down loading the required data from the software pool under http://service.abg.fsc.net/support/softwareAssist.asp.

► Open the server as described in the chapter “Preparation” on page 13 et seqq. .

► Disconnect all power cables from the system board and the drives (see the cabling plans in the Appendix).

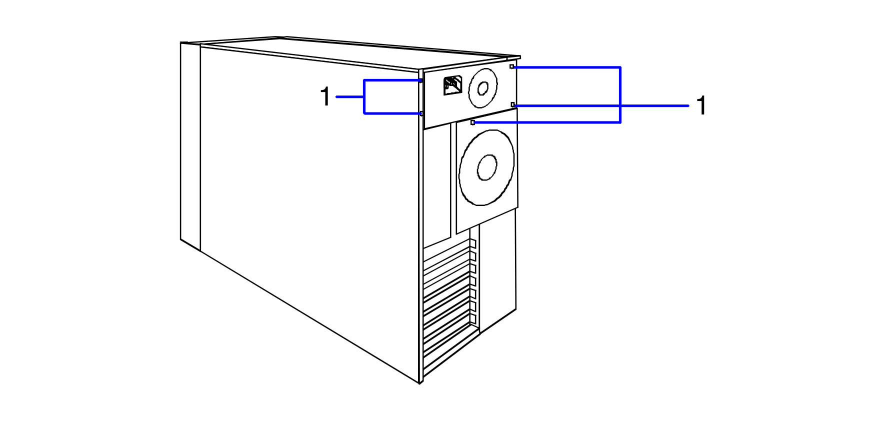


Figure 29: Loosening the screws

► Remove the five screws (1) which attach the adapter plate of the standard power supply to the housing.

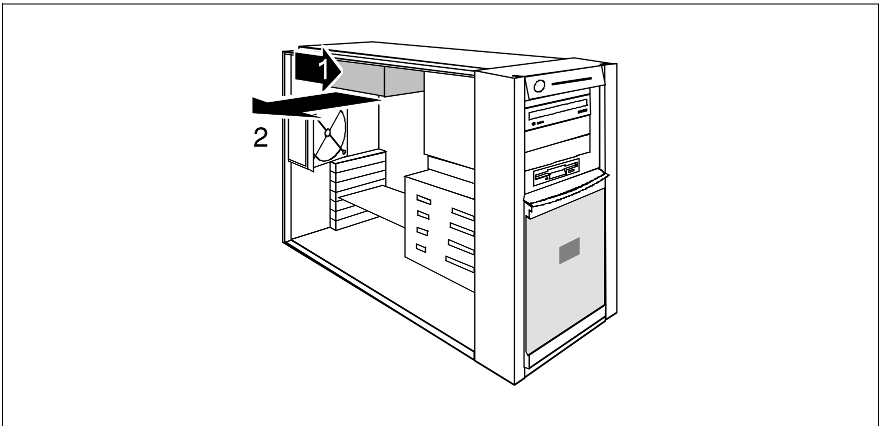


Figure 30: Taking out the standard power supply

► Slide the standard power supply somewhat toward the inside (1) to detach it from the brackets in the side cover and take it out toward the side (2).

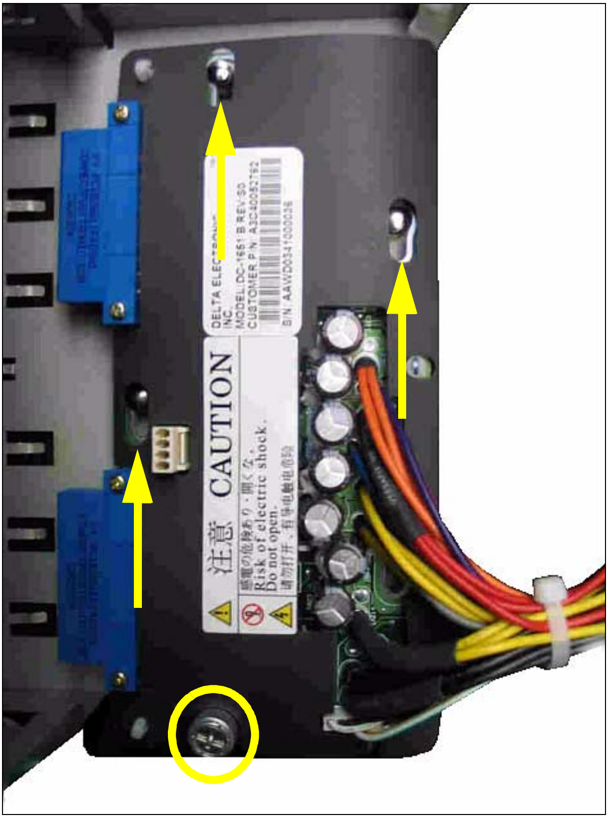


Figure 31: Installing the Power backplane in the PS cage

- Insert the Power backplane in the PS cage.
- Push the Power backplane in direction of the arrows until the three bolts of the PS cage engage.
- Fasten the Power backplane with one knurled screw (see the circle).

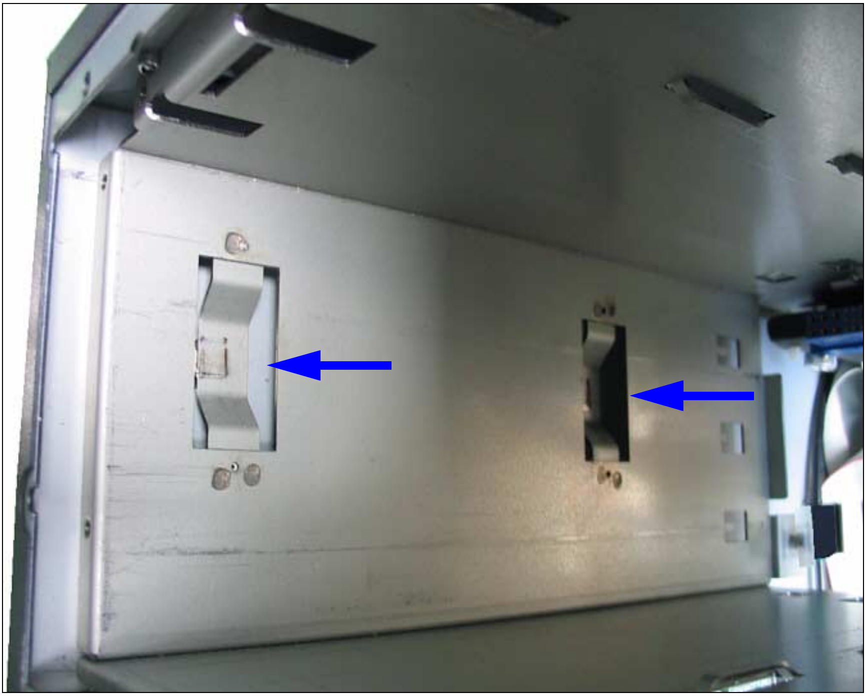


Figure 32: Installing the PS cage

► Push the PS cage from inside into the bay. In the floorstand model the Power backplane is positioned under the top cover, and in the rack model at the right-hand side cover (seen from front side).

CAUTION!

Make sure that the two noses of the PS cage (see the arrows) engage in the housing. Ensure that no damage is caused to the cables.



Figure 33: Fastening the PS cage in the housing

► Fasten the PS cage in the housing with one screw M3x4.5 mm (see the circle).

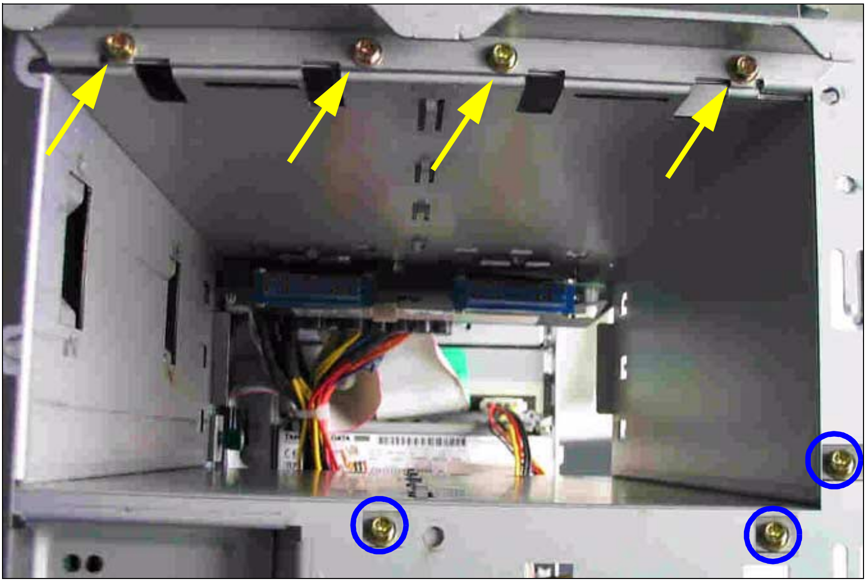


Figure 34: Fastening the PS cage at the rear side

- Fix the locking rail with four screws (see the arrows) on the rear side of the server..
- Fasten the PS cage with three screws M3x4.5 mm (see the circles) at the rear side.
- Connect all power cables to the system board and the drives (see the cabling plans in the Appendix).

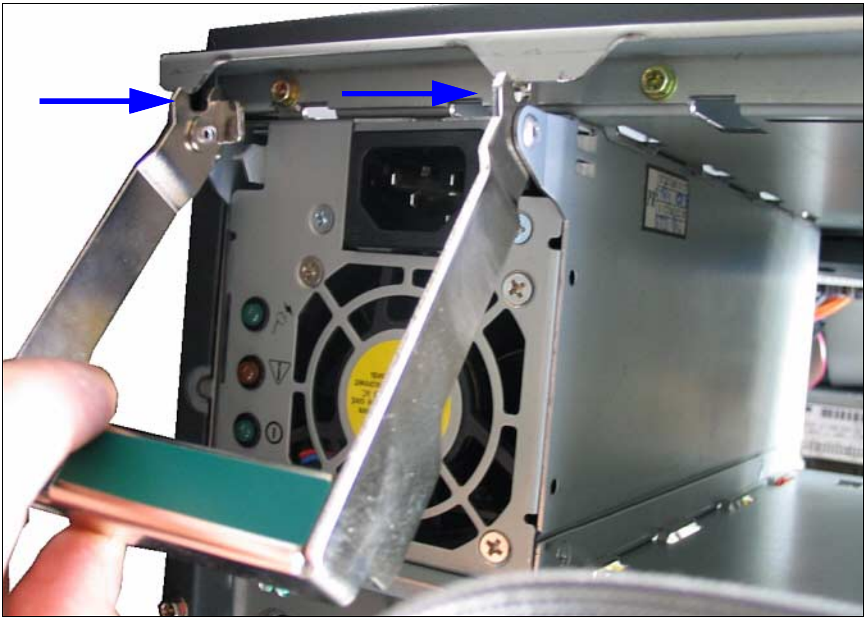


Figure 35: Inserting the power supply module

- Push the power supply module in the left side (floorstand model) or bottom side (rack model) bay.
- Lift the green handle somewhat upwards so that the forked levers (see the arrows) can fit to the locking rail.



Figure 36: Locking the power supply module

- Push the green handle downward until the locking slide (see the arrow) engages.
- Plug the power cord to the connector of the power supply module.
- If you want to install a second power supply module, proceed in the same way.

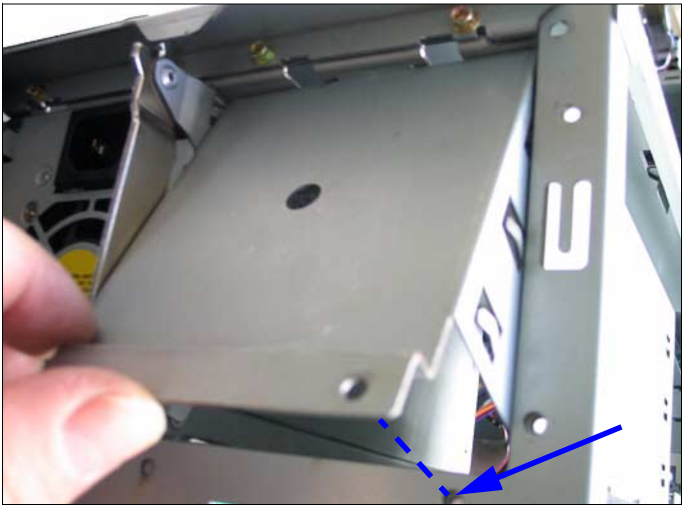


Figure 37: Installing the dummy cover

- If you have not ordered a second power supply module, install the dummy cover in the second bay:
  Hook the top side of the dummy cover into the chassis, after this swivel the dummy cover down and fasten it with one screw (see the arrow) to the housing.

CAUTION!

For floorstand models with hot-plug power supply the supplied anti-tilt bracket must be fitted at the rear of the server.

Mounting the anti-tilt bracket (only floorstand model)

► Attach the left-hand side cover as described in section “Closing the server” on page 61.

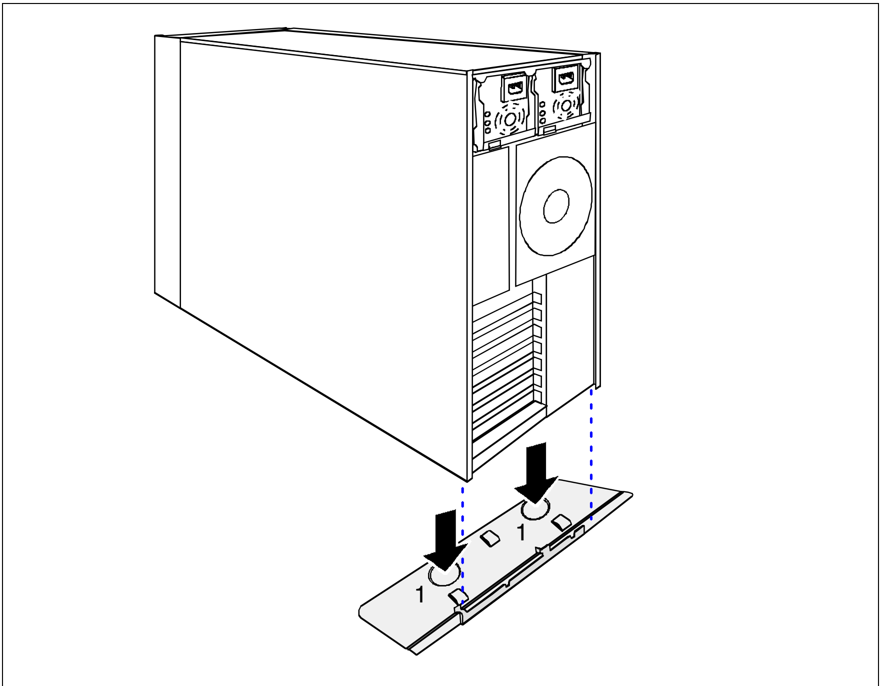


Figure 38: Mounting the anti-tilt bracket

► Position the server on the anti-tilt bracket in the way that the rubber feet of the server fit into the openings of the bracket (1).

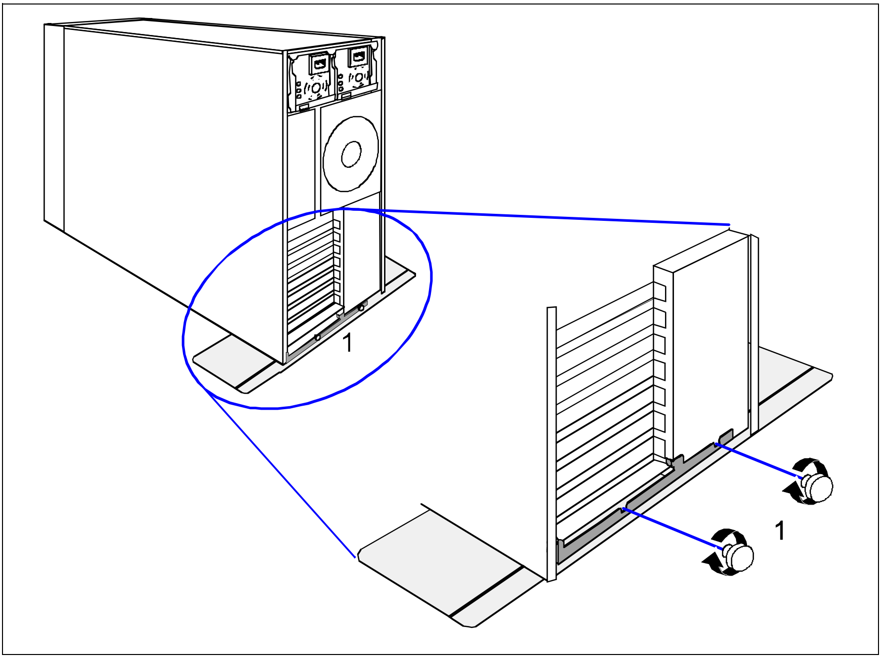


Figure 39: Fastening the anti-tilt bracket

► Fasten the anti-tilt bracket using the two knurled screws (1).

► Close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59 et seqq. .

CAUTION!

After installing the hot-plug power supply the SDR (sensor data record) data base must be updated. For this sequence you need the BIOS flash diskette prepared before. This diskette contains the newest BIOS version, the BMC firmware and the SDR data.

You will find the description of the indicators of the power supply module in the Operating Manual for the PRIMERGY TX150 S3.

11 Converting from the floorstand model to the rack model

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

- Open the server and remove the front cover as described in the chapter “Preparation” on page 13ff.

The front cover is no longer required.

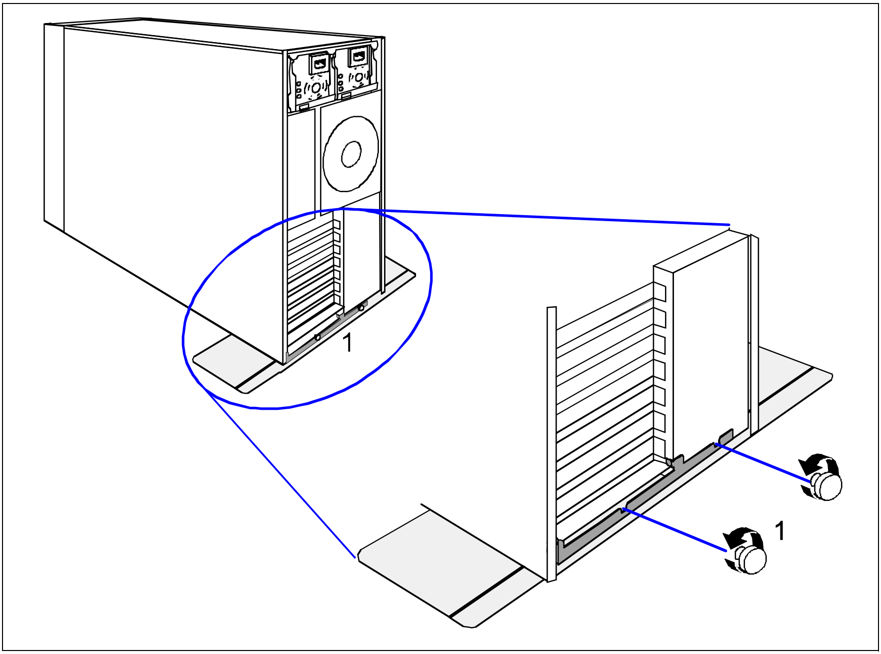


Figure 40: Removing the anti-tilt bracket

- If your server is equipped with an anti-tilt bracket, remove it:
  - Remove the two knurled screws (1) and lift the server out of the anti-tilt bracket.

The right-hand side cover and the top cover build one part.

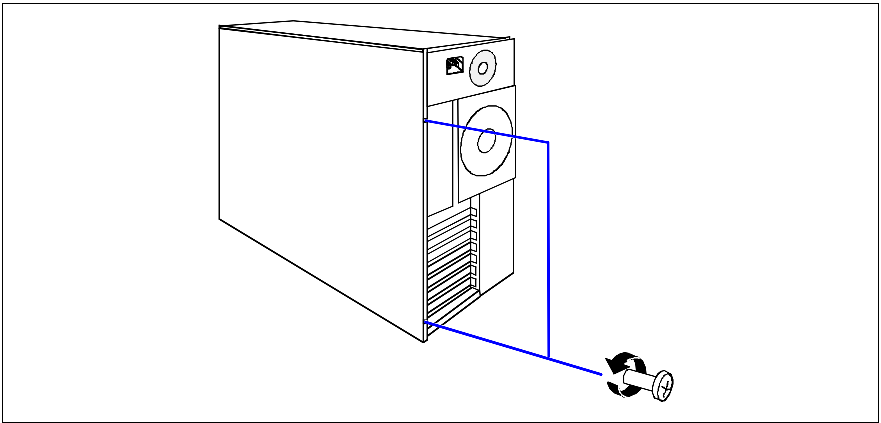


Figure 41: Removing the screws

- ► Remove the two screws at the rear side.

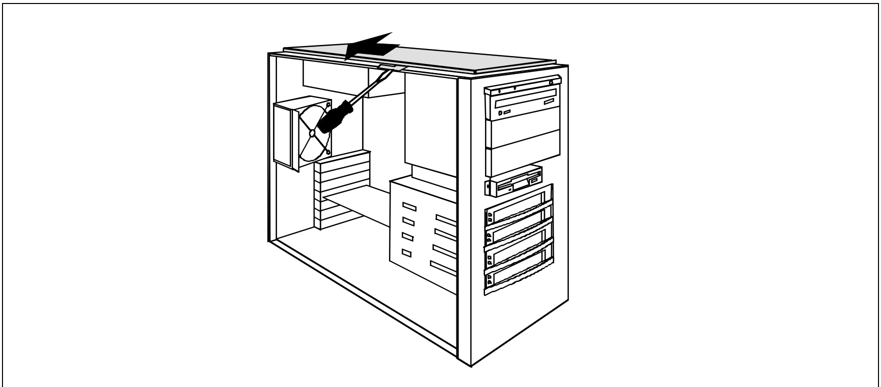


Figure 42: Removing the right-hand side cover

- ► Lift the hook up slightly using a screwdriver.
- ► Push the right-hand side cover in the direction of the arrow.
- ► Lift off the right-hand side cover.

i The right-hand side cover is no longer required.

► Lay the server on its right-hand side.

CAUTION!

Get a second person to help you do this. The server can weigh up to 40 kg.

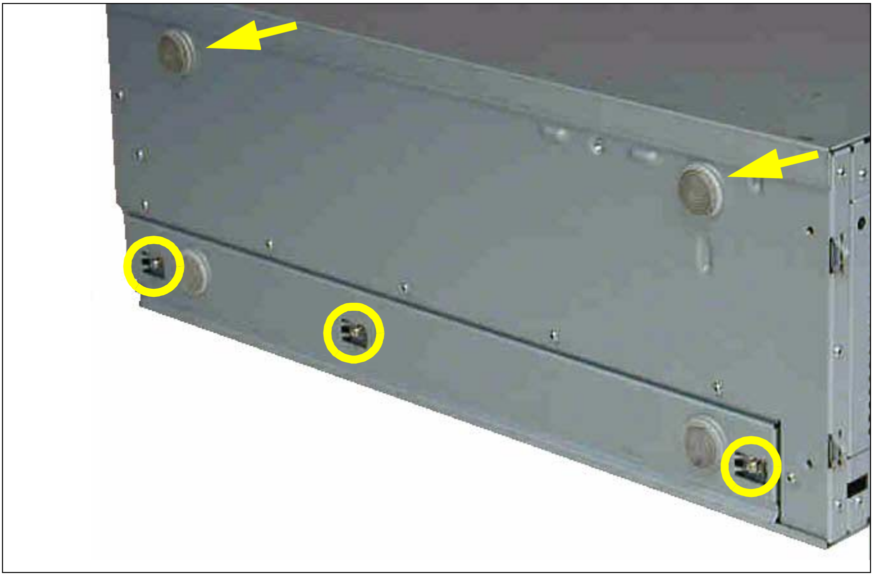


Figure 43: Removing the rubber feet

► Remove the two upper rubber feet (see the arrows) on the left side.

► Remove the three screws (see the circles) and take out the rail with the two lower rubber feet.

The rubber feet and the rail are no longer required.

The drive cage for the accessible drives is constructed in such a way that the accessible drives and the operating panel module can be taken out simply, turned through 90° to the left, and then be reinstalled.

► Remove the dummy covers from the drive cage (figure 15 on page 25).

► Unplug the cables from the system board or the accessible drives and remove the drives from the drive cage.

► Pull the operating panel module forward out of its mounting location until you can pull the the ribbon cable and the USB cable out of the operating panel module. Remove the two cables.

► Remove the operating panel module.

► Turn the operating panel module through 90° to the left.

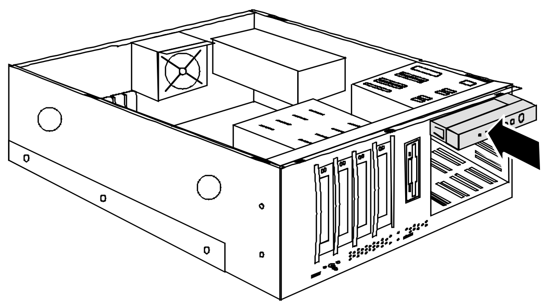


Figure 44: Installing the operating panel module

► Push the operating panel module halfway into the upper bay of the drive cage.

► Connect the ribbon cable and the USB cable to the operating panel module.

► Now push the operating panel module fully into the upper bay of the drive cage.

► Turn the drives removed beforehand through 90° to the left.

► Turn the dummy covers removed beforehand through 90° to the left.

► Install the drives and empty covers in the drive cage.

► Reestablish all connections to the drives.

- Attach the rack front cover, close the server, connect it to the power outlet, and switch it on as described in the chapter “Completion” on page 59ff.

To enable the rack model to be presented correctly in *ServerView*, proceed as follows:

- Place the *ServerStart* CD-ROM in the drive.
- Under the path `\Tools\System Configuration` start the `SCU_Chassis Model Conversion` program and change the server type to "PRIMERGY TX150S3 Rack".

12 Completion

CAUTION!

Observe the safety instructions in the chapter “Safety notes” on page 7 et seqq. .

12.1 Floorstand model

12.1.1 Attaching the hard disk cover

After you have installed further SATA hard disk drives, reattach the hard disk cover.

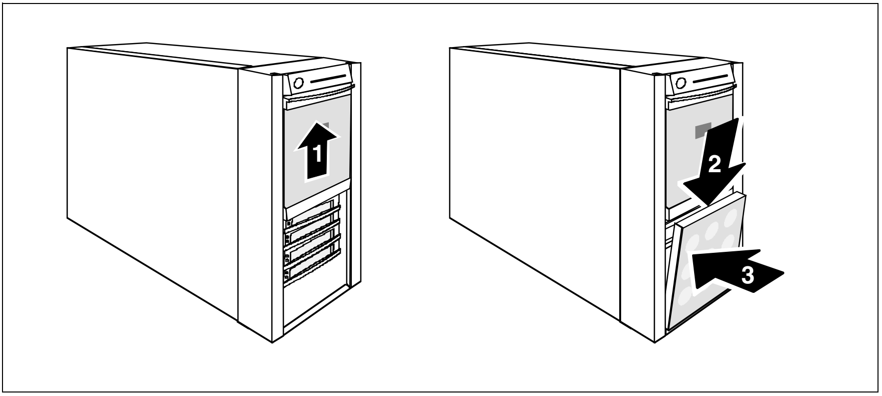


Figure 45: Attaching the hard disk cover

- Push the drive cover up as far as possible (1).
- Reinsert the hard disk cover (2 + 3).
- Insert the key.
- Lock the server.
- Press the on/off key to start up the server.

12.1.2 Attaching the front cover

After you have installed further accessible drives, reattach the front cover.

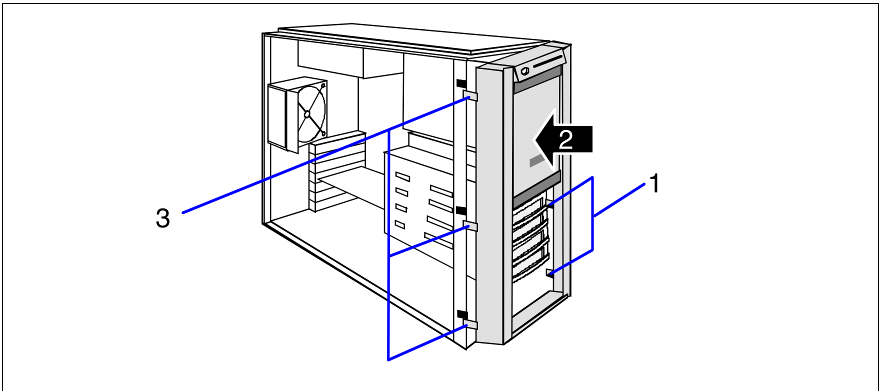


Figure 46: Attaching the front cover

- ► Press the two hooks (1) on the right side in the recesses of the housing.
- ► Press the front cover onto the housing (2) until the three tabs on the left side engage (3).
- ► Attach the hard disk cover as shown in figure 45 on page 59.

12.1.3 Closing the server

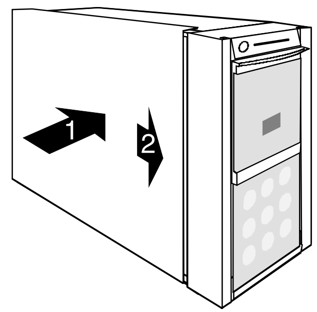


Figure 47: Attaching the left-hand side cover

- Position the left-hand side cover in such a way that it protrudes approxiate 2 cm at the rear (1). Shut the left-hand side cover.
- Push the left-hand side cover all the way forward (2).

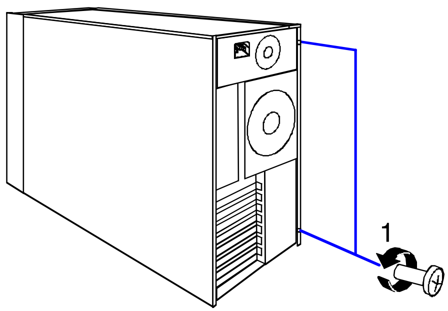


Figure 48: Fastening the left-hand side cover

- Fasten the left-hand side cover with two screws (1).
- Insert the key.
- Lock the server.
- Connect all power plugs to the power outlets.
- Press the on/off key to start up the server.

12.2 Rack model

12.2.1 Attaching the rack front cover

Reattach the rack front cover after implementing the following extensions:
- Installation of further accessible drives
- Conversion of the floorstand model to a rack model

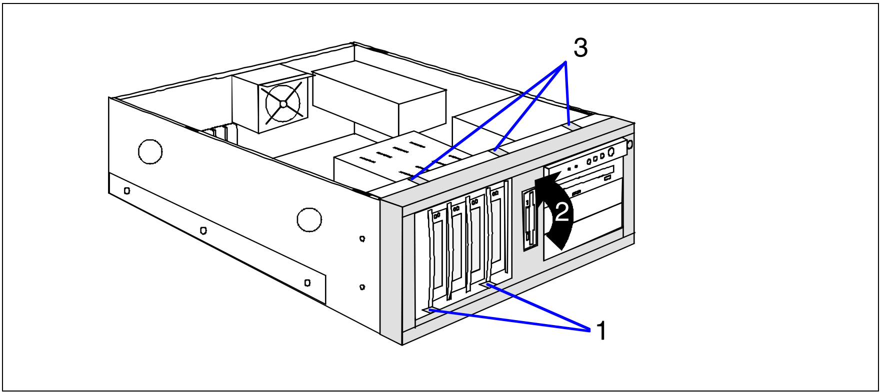


Figure 49: Attaching the plastic front cover

► Press the two hooks (1) on the bottom side in the recesses of the housing.

► Press the plastic front cover onto the housing (2) until the three tabs on the top side engage (3).

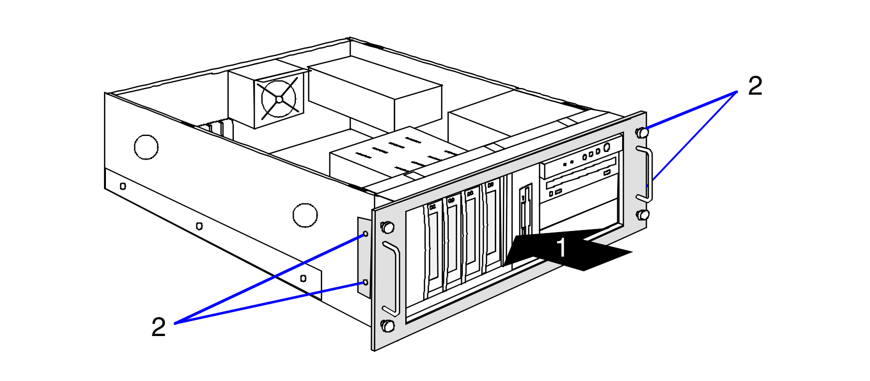


Figure 50: Attaching the rack front cover

- ► Attach the rack front cover from the front (1).
- ► Attach the rack front cover using two screws on each side (2).

12.2.2 Closing the server

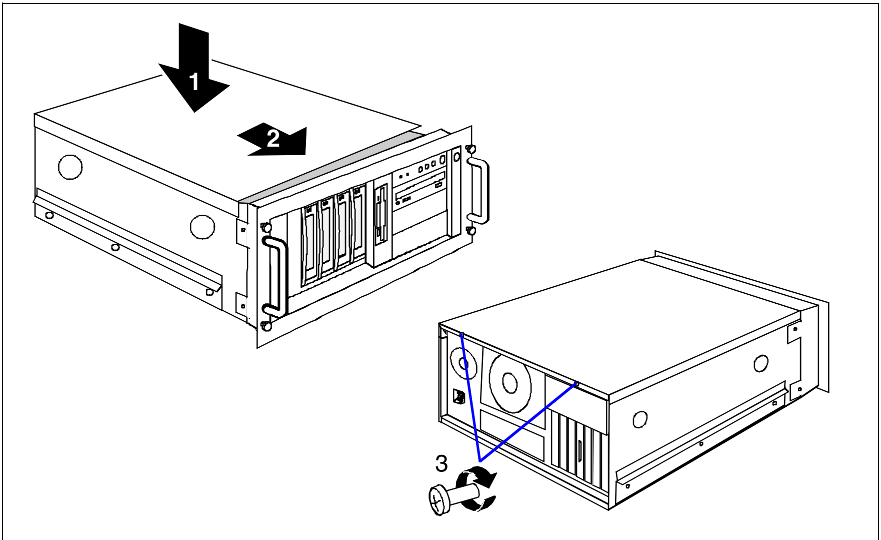


Figure 51: Attaching the top cover

- Position the top cover in such a way that it protrudes approxiate 2 cm at the rear (1).
- Push the top cover all the way forward (2).
- Fasten the top cover with two screws (3).

If you have not removed the server from the rack cabinet, please skip this page.

CAUTION!

At least two people are required to install the server in the rack cabinet. Do not use the handles on the rack front cover to lift the server into the rack.

► Lower the server from above onto the extended telescopic rails.

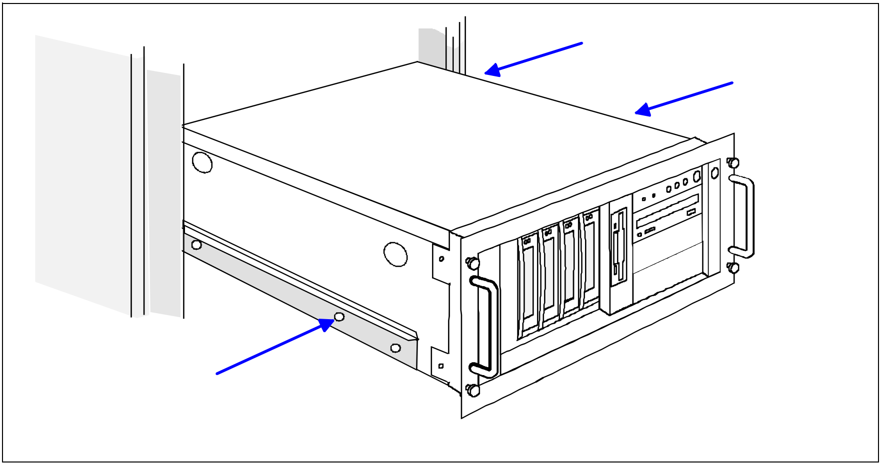


Figure 52: Installing the server in a rack cabinet

► Screw the telescopic rails onto the left-hand side (one screw) and right-hand side (two screws) of the server.

► Reconnect all the cables you disconnected beforehand on the rear of the server.

► Press in the locking spring on both sides and push the server as far as it will go into the rack.

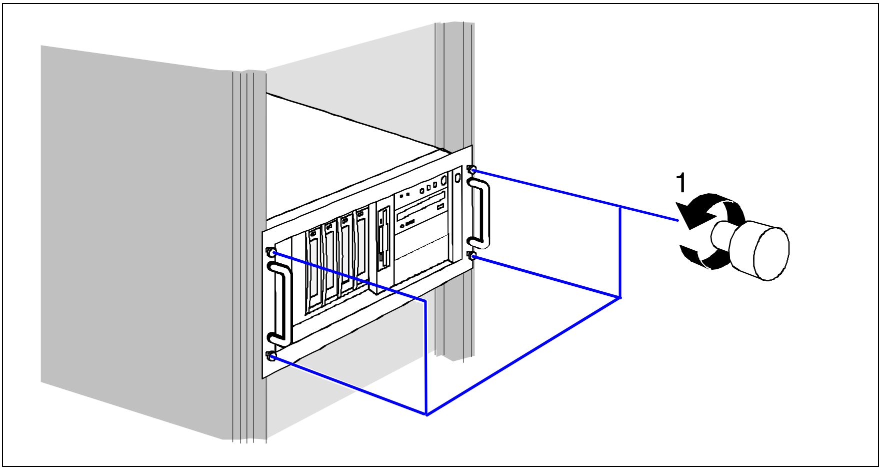


Figure 53: Fastening the server in the rack cabinet

- Fasten the server in the rack using the four knurled screws (1).
- Connect all power plugs to the power outlets.
- Press the on/off key to start up the server.

13 Appendix

13.1 Cabling

The Pn numbers of the power cables are identical for the standard and the redundant power supply. You will not find a special drawing for the power supply cabling.

13.1.1 SCSI version

1-channel SCSI version with onboard SCSI controller

In the basic version the tape drives and the four internal hard disk drives are connected to the onboard SCSI controller via one SCSI cable.

1-channel SCSI version with additional SCSI RAID controller

A SCSI RAID controller is installed into a PCI slot and connected with the four internal hard disk drives.

In this case, the connection to the onboard SCSI controller must be changed to the RAID controller. The accessible drives must be unplugged from this SCSI cable.

After this the accessible drives can be connected to the onboard SCSI controller via an additional SCSI cable.

Supplementary channels of the RAID controller are available for external hard disk drive systems.

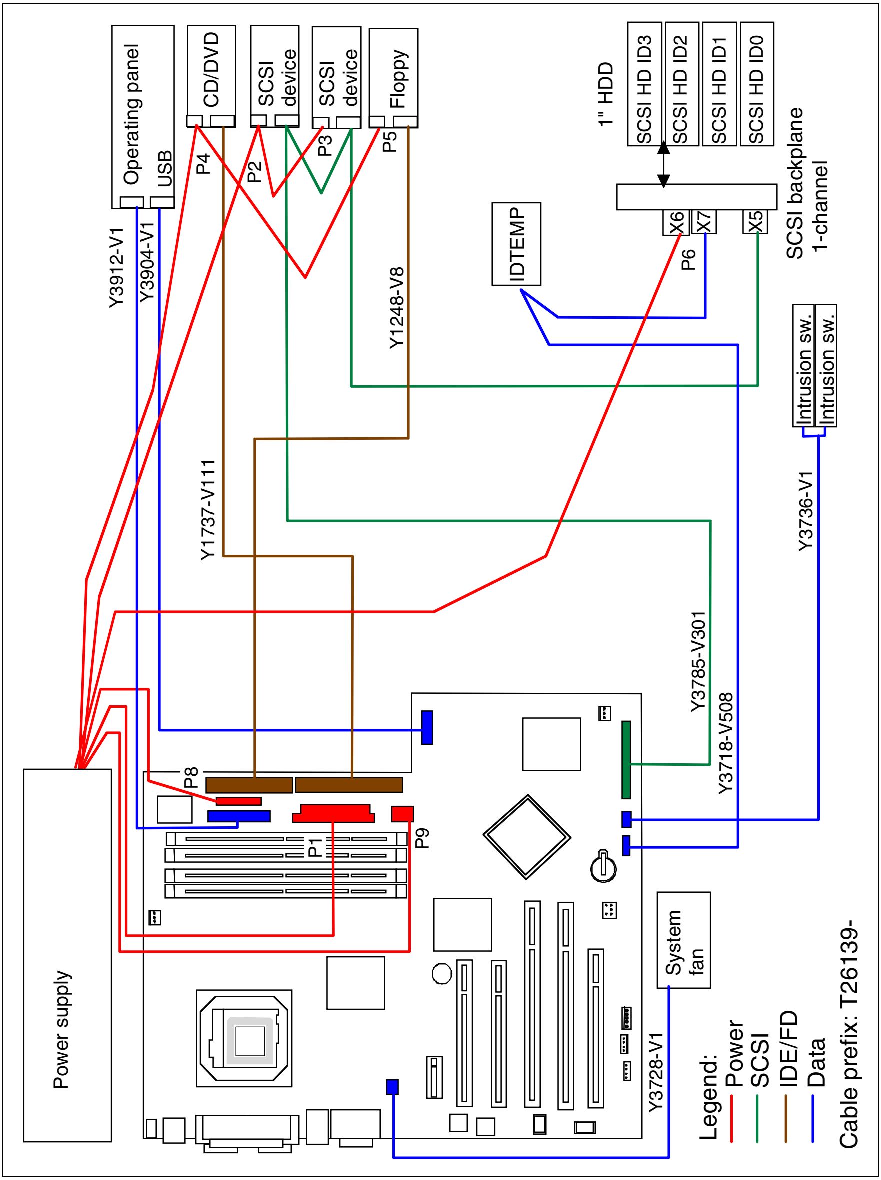


Figure 54: Cabling 1-channel SCSI version with onboard SCSI controller

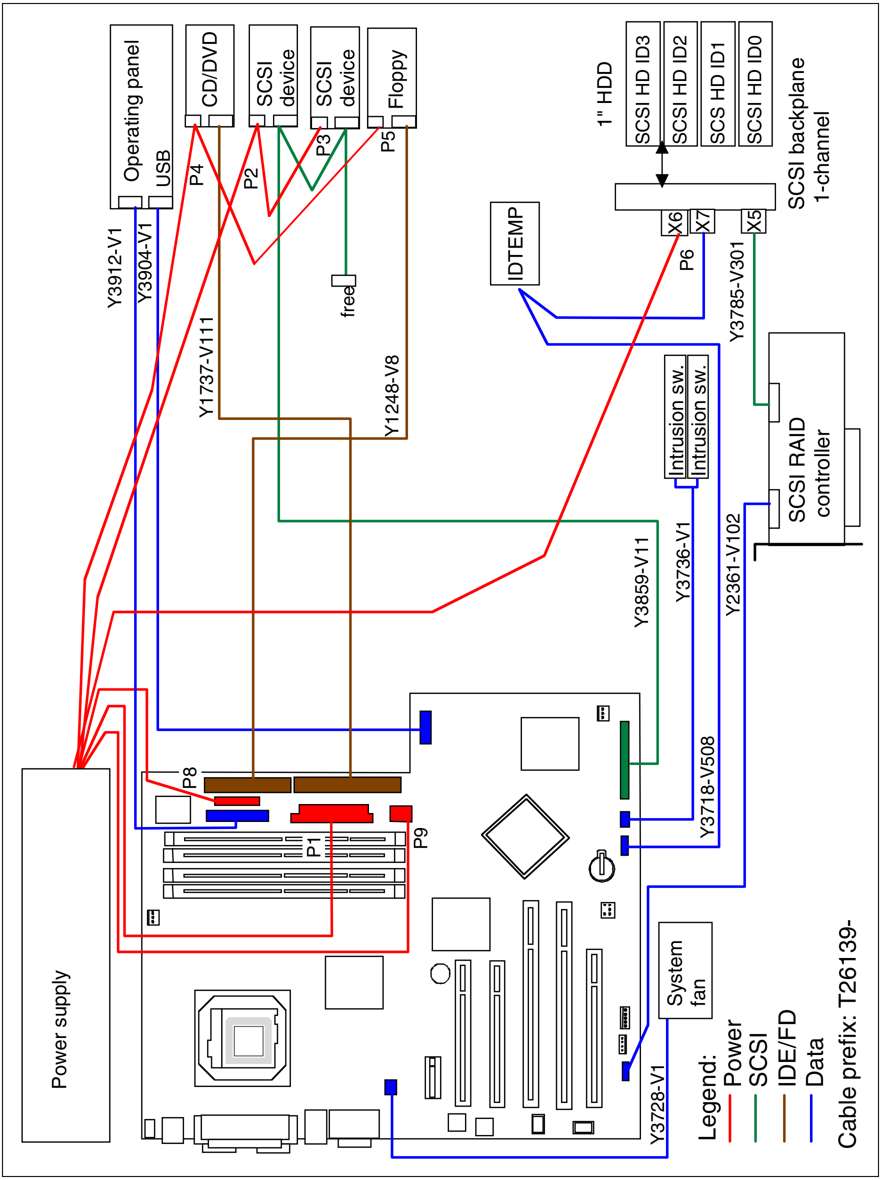


Figure 55: Cabling 1-channel SCSI version with additional SCSI RAID controller

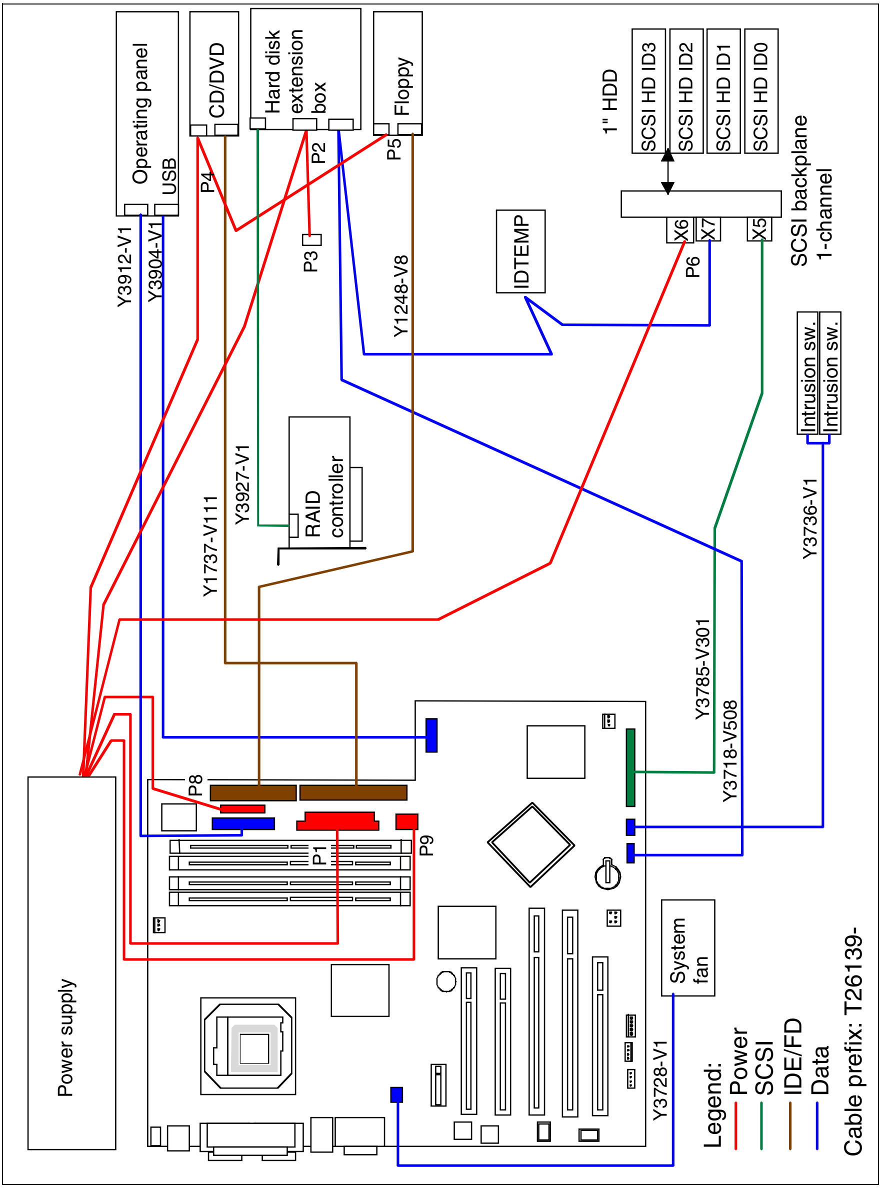


Figure 56: Cabling hard disk extension box

13.1.2 SATA version

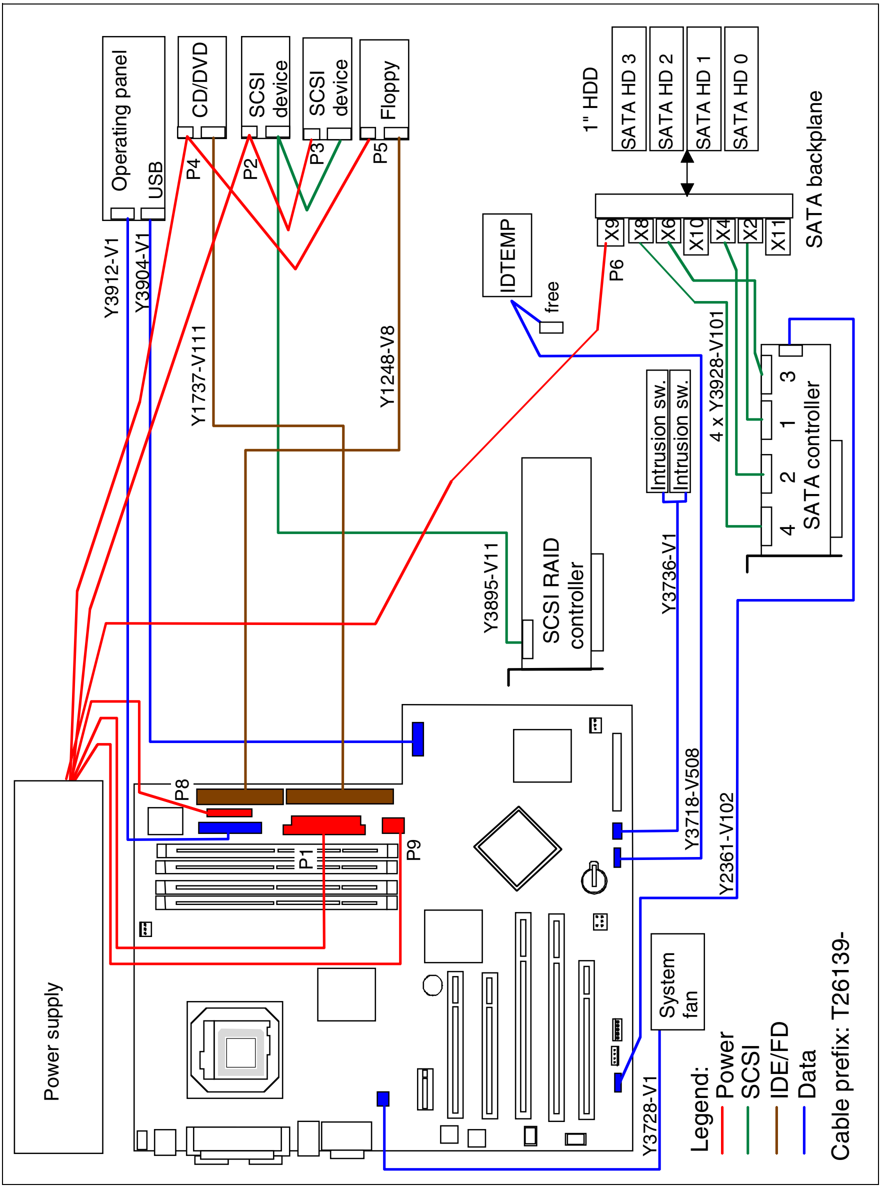


Figure 57: Cabling with additional SATA controller

Abbreviations

AC
Alternating Current

ANSI
American National Standard Institut

ASR&R
Automatic Server Reconfiguration and Restart

BIOS
Basic Input-Output System

BMC
Baseboard Management Controller

CC
Cache Coherency

CD
Compact Disk

CD-ROM
Compact Disk-Read Only Memory

CHS
Cylinder Head Sector

CMOS
Complementary Metal Oxide Semiconductor

COM
Communication

CPU
Central Processing Unit

DC
Direct Current

DIMM
Dual Inline Memory Module

DIP
Dual Inline Package

DMA
Direct Memory Access

DMI
Desktop Management Interface

ECC
Errror Checking and Correcting

ECP
Extended Capabilities Port

EEPROM
Electrically Erasable Programmable Read-Only Memory

EMC
ElectroMagnetic Compatibility)

EMP
Emergency Management Port

EPP
Enhanced Parallel Port

ESD
ElectroStatic Discharge

FPC
Front Panel Controller

FRU
Field Replaceable Unit

FSB
Front Side Bus

GAM
Global Array Manager

GUI
Graphical User Interface

HDD
Hard Disk Drive

HSC
Hot-Swap Controller

I²C
Inter-Integrated Circuit

I/O
Input/Output

ICM
Intelligent Chassis Management

ID
Identification

IDE
Intergrated Drive Electronics

IOOP
Intetelligent Organization of PCI

IRQ
Interrupt Request Line

LAN
Local Area Network

LBA
Logical Block Address

LCD
Liquid Crystal Display

LUN
Logical Unit Number

LVD
Low-Voltage Differential SCSI

MMF
Multi Mode Faser

MRL
Manually Retention Latch

NMI
Non Maskable Interrupt

NVRAM
Non Volatile Random Access Memory

OS
Operating System

PCI
Peripheral Component Interconnect

PDA
Prefailure Detection and Analysing

POST
Power ON Self Test

RAID
Redundant Arrays of Independent Disks

RAM
Random Access Memory

ROM
Read-Only Memory

RSB
Remote Service Board

RTC
Real Time Clock

RTDS
Remote Test- und Diagnose-System

SAF-TE
SCSI Accessed Fault-Tolerance Enclosures

SBE
Single Bit Error

SCA
Single Connector Attachment

SCSI
Small Computer System Interface

SDDC
Single Device Data Correction

SDR
Sensor Data Record

SDRAM
Synchronous Dynamic Random Access Memory

SEL
System Event Log

SMI
System Management Interrupt

SSU
System Setup Utility

SVGA
Super Video Graphics Adapter

USB
Universal Serial Bus

VGA
Video Graphics Adapter

Related publications

PRIMERGY manuals are available as PDF file on the ServerBooks CD. The **ServerBooks** CD is part of the **ServerView Suite** delivered with each server system.

The actual version of the necessary manuals can be downloaded free of charge from the Internet. The overview page showing the online documentation available in the Internet can be found via the URL: *http://manuals.fujitsu-siemens.com* (choose: intel based servers/PRIMERGY ServerBooks).

[1] **Safety**

[2] **Warranty**

[3] **PRIMECENTER Rack**
Technical Manual

[4] **DataCenter Rack**
Technical Manual

[5] **19 inch rack**
Technical Manual

[6] **PRIMERGY ServerView Suite**
ServerStart

[7] **ServerView**
Server Management
User Manual

[8] **ServerView Extension**
ServerView Extension for HP OpenView NNM

[9] **ServerView/Plus for Tivoli**

[10] **RemoteView**
User Manual

[11] **PRIMERGY TX150 S3**
Operating Manual

[12] **System Board D1979**
Technical Manual

[13] **BIOS-Setup**
Reference Manual

[14] **Integrated Mirroring**
User's Guide

[15] **Global Array Manager Client Software**
User's Guide

[16] **Configurator**
For partners and distributors only:
http://extranet.fujitsu-siemens.com/cafe/products/primergy

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Comments
Suggestions
Corrections

Submitted by

Comments on PRIMERGY TX150 S3
Server System

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